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QUESTION PAPER
SERIES CODE

A

Registration No. :

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Centre of Exam. : _____

Name of Candidate : _____

Signature of Invigilator

ENTRANCE EXAMINATION, 2015

M.A. ECONOMICS

[Field of Study Code : ECOM (216)]

Time Allowed : 3 hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

Candidates must read carefully the following instructions before attempting the Question Paper :

- (i) Please write your Name and Registration Number in the space provided for the purpose on the top of this Question Paper and in the Answer Sheet.
- (ii) **Please darken the appropriate Circle of the Question Paper Series Code on the Answer Sheet.**
- (iii) All questions are compulsory.
- (iv) Answer all the questions in the Answer Sheet provided for the purpose by darkening the correct choice, i.e., (a) or (b) or (c) or (d) with a BALLPOINT PEN only against the corresponding circle. Any overwriting or alteration will be treated as wrong answer.
- (v) Each correct answer in Section—A carries 1 mark and each correct answer in Section—B carries 2 marks.
- (vi) **There will be negative marking and for each wrong answer, ¼ mark would be deducted for 1 mark questions and ½ mark would be deducted for 2 marks questions.**
- (vii) Answer written by the candidates inside the Question Paper will not be evaluated.
- (viii) Pages at the end have been provided for Rough Work.
- (ix) Simple calculators may be used for calculations.
- (x) Return the Question Paper and Answer Sheet to the Invigilator at the end of the Entrance Examination.
PLEASE DO NOT FOLD THE ANSWER SHEET.

INSTRUCTIONS FOR MARKING ANSWERS

1. Use only Blue/Black Ballpoint Pen (do not use pencil) to darken the appropriate Circle.
2. Please darken the whole Circle.
3. Darken ONLY ONE CIRCLE for each question as shown in example below :

Wrong	Wrong	Wrong	Wrong	Correct
● (b) ●	⊗ (b) ⊗ (c) ⊗ (d)	⊗ (b) ⊗ (c) ⊗ (d)	● (b) ● (c) ●	● (a) ● (b) ● (c) ●

4. Once marked, no change in the answer is allowed.
5. Please do not make any stray marks on the Answer Sheet.
6. Do rough work only on the pages provided for this purpose.
7. Mark your answer only in the appropriate space against the number corresponding to the question.
8. **Ensure that you have darkened the appropriate Circle of Question Paper Series Code on the Answer Sheet.**

Section—A

Each question carries 1 mark

1. If a country's nominal GDP is constant, then which of the following statements about it would be correct?
 - (a) It is impossible for the real per capita GDP to rise in such circumstances.
 - (b) The real per capita GDP can rise if and only if the country's population is shrinking *and* prices are falling.
 - (c) For the real per capita GDP to rise, it is sufficient that the price level should decline.
 - (d) It is possible for real per capita GDP to rise even if the country's population is increasing.

2. The GDPs (at factor cost) and population sizes of two countries A and B were identical in a particular year. Which of the following statements is then necessarily true for that year?
 - (a) A and B had identical per capita incomes.
 - (b) A and B were equally wealthy countries.
 - (c) A and B had identical levels of labour productivity.
 - (d) Neither of the three—(a), (b) and (c) need be the case.

3. If in an economy all production is undertaken by firms and the recorded sales of all firms in a year are less than their respective recorded costs, then which of the following statements is necessarily true?
 - (a) At least some firms must have made accounting errors.
 - (b) The economy's GDP of that year was negative.
 - (c) The total purchases of intermediates by firms were more than their total sales.
 - (d) Neither of the above

4. The two largest net exporters of capital in the world in recent years have been
 - (a) Germany and Japan
 - (b) Germany and China
 - (c) China and Saudi Arabia
 - (d) China and Russia

5. If X_1, X_2, \dots, X_n are non-negative real numbers, then their
- arithmetic mean \leq geometric mean
 - geometric mean \leq arithmetic mean
 - arithmetic mean = 0.5 (geometric mean)
 - There is no fixed relationship between arithmetic mean and geometric mean
6. Let $f(x) = (\log(x))/x$, where $0 < x < 1$. Then for all x such that $0 < x < 1$
- $f'(x) < 0$
 - $f'(x) > 0$
 - $f'(x) > 0$, if $0 < x < 0.5$ and $f'(x) < 0$, if $0.5 \leq x < 1$
 - Can't say anything about the sign of $f'(x)$
7. The binomial theorem states that
- $(x+a)^n = \sum_{k=0}^n \binom{n}{k} x^k a^{n-k}$
 - $(x+a)^n = \sum_{k=0}^n \binom{n}{k} x^k a^{n-k} + x^k / a^{n-k}$
 - $(x+a)^n = \sum_{k=0}^n \binom{n}{k} x^k a^{n-k} - x^k / a^{n-k}$
 - None of the above
8. The gross fiscal deficit is
- total expenditure less total revenue receipts
 - total borrowings less repayment of past debt
 - revenue expenditures less total revenue receipts
 - total expenditure less payment of interest
9. The primary deficit refers to
- the deficit in the primary sector of the economy
 - the deficit in the revenue account of the budget
 - the deficit in the capital account of the budget
 - the fiscal deficit less the interest outgo in the budget

10. If the fiscal deficit of an economy be 3% of GDP and if the current account deficit also be 3% of GDP in a particular year for that economy, then its aggregate saving must be equal to aggregate investment. The above statement is
- (a) true
 - (b) false
 - (c) not necessarily true
 - (d) not necessarily false
11. If some individual gets ₹ 3,000 as her wage on the first day of every month and if she spends exactly ₹ 100 everyday and exhausts all her money by the end of the month, then what would be her approximate average money holding throughout the year?
- (a) ₹ 3,000
 - (b) ₹ 36,000
 - (c) ₹ 18,000
 - (d) ₹ 1,500
12. The theory of comparative advantage in a two-country, two-commodity world can only work if
- (a) labour and capital are mobile
 - (b) labour is mobile and capital is not
 - (c) both capital and labour are mobile
 - (d) both capital and labour are not mobile
13. Current account transactions of a country include
- (a) exports and imports of goods
 - (b) exports and imports of goods and invisibles, including services
 - (c) exports and imports of goods and invisibles and capital flows
 - (d) exports and imports of goods and invisibles and foreign exchange reserves
14. In the long run, the steady state rate of growth of a capitalist economy
- (a) falls with the savings propensity
 - (b) rises with the incremental capital output ratio
 - (c) rises with the savings propensity but falls with the incremental capital output ratio
 - (d) falls with the savings propensity but rises with the incremental capital output ratio

15. Accelerator and multiplier stand for
- (a) the same thing and lead to an increase in output of the economy
 - (b) the same thing and cause an increase in investment with increase in output
 - (c) different things with the first causing a change in investment due to a change in output and the second causing a change in output due to a change in investment
 - (d) different things with the first causing a change in output due to a change in investment and the second causing a change in investment due to a change in output
16. In practice most free trade agreements between two countries are designed to
- (a) eliminate tariffs
 - (b) eliminate tariffs and other non-tariff measures
 - (c) fully liberalize trade in goods and services
 - (d) include free movement of all goods and factors
17. Under the Bretton Woods system
- (a) dollar and gold were both used in international transactions
 - (b) dollar and Special Drawing Rights issued by the International Monetary Fund were both used as international currencies
 - (c) only Special Drawing Rights were used
 - (d) dollar was recognized as the international reserve currency
18. If the exchange rate of some economy depreciates vis-à-vis US \$ and if the Marshall-Lerner condition is satisfied, then the current account deficit of that economy is expected to
- (a) increase
 - (b) decrease
 - (c) remain the same
 - (d) can't say
19. The scatter plot of X and Y
- (a) gives little information about the actual values
 - (b) requires that a linear regression be calculated and displayed
 - (c) indicates causal direction since X is the independent variable
 - (d) has none of the above characteristics

20. A distribution of 6 scores has a median of 21. If the highest score increases 3 points, the median will become
- (a) 21
 - (b) 21.5
 - (c) 24
 - (d) Cannot be determined without additional information
21. Suppose that the exchange rate of the Indian rupee appreciates by 10 percent relative to the currencies of India's trading partners. Over the same period, inflation in India is 8 percent compared to 3 percent inflation in the trading partners. What is the change in India's real exchange rate?
- (a) 5 percent appreciation
 - (b) 10 percent appreciation
 - (c) 15 percent appreciation
 - (d) 5 percent depreciation
22. Consider the following statement :
- "For most of the period when it was under British Crown rule, India had an export surplus and yet its foreign liabilities increased."
- Which of the following can be said about this statement?
- (a) This is correct
 - (b) This was true only for the period of Company rule
 - (c) This is logically impossible
 - (d) This is logically possible but factually incorrect
23. Which of the following statements is the only correct one?
- (a) India's per capita GDP in PPP terms is lower than that of Sri Lanka and Pakistan.
 - (b) India's per capita GDP in PPP terms is higher than that of Sri Lanka and Pakistan.
 - (c) India's per capita GDP in PPP terms is higher than that of Sri Lanka but lower than that of Pakistan.
 - (d) India's per capita GDP in PPP terms is lower than that of Sri Lanka but higher than that of Pakistan.

24. The aggregate population of the G7 countries is
- (a) less than that of either China or India
 - (b) higher than that of China or India
 - (c) higher than India's but less than China's
 - (d) approximately the same as India's
25. Life Insurance was nationalized in India in
- (a) 1947
 - (b) 1950
 - (c) 1956
 - (d) 1973
26. If x is any real number, then
- (a) $e^x = 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots$
 - (b) $e^x = x + 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots$
 - (c) $e^x = x^2 + 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots$
 - (d) $e^x = x^3 + 1 + \frac{x}{1!} + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots$
27. Which of the following statements is (in general) true?
- (a) Marginal Cost (MC) is minimized where $MC = \text{Average Variable Cost (AVC)}$.
 - (b) Average Total Cost (ATC) is maximized where $MC = \text{ATC}$.
 - (c) Average Variable Cost (AVC) is minimized where $MC = \text{AVC}$.
 - (d) Total Revenue is maximized where $MC = \text{Marginal Revenue (MR)}$.

28. If population A has a larger standard deviation than population B
- (a) population A will have a greater range than B
 - (b) population A will have a smaller range than B
 - (c) population A will be more skewed than B
 - (d) we cannot say which population has the greater range or skewness
29. If you are told a population has a mean of 25 and a variance of 0, what must you conclude?
- (a) Someone has made a mistake
 - (b) There is only one element in the population
 - (c) There are no elements in the population
 - (d) All the elements in the population are 25
30. One card is drawn from a standard 52-card deck. In describing the occurrence of two possible events, an Ace and a King, these two events are said to be
- (a) independent
 - (b) mutually exclusive
 - (c) random variables
 - (d) randomly independent

Answer Question Nos. 31-35 in the light of the passage given below :

"A multiplicity of manufacturing activities will make a kingdom or city abound in money when they are diverse and produce things necessary or useful or pleasing to people in quantities that exceed the needs of the country. There are four reasons why this is so.

First, there is greater certainty in manufacturing activity, for a manufacturer is more certain to earn from his work than a farmer or other person who tills the soil or deals in his agricultural produce, for the earnings of these people depend not just on human labour but on the weather—since the land sometimes needs rain, and sometimes sun—as well as other conditions. And if these conditions are not forthcoming or the weather is bad, their work is wasted and instead of making money they lose it. But a manufacturer's earnings are always certain, provided that he keeps working.

Second, in manufacturing activities it is possible to achieve a multiplication of products, and therefore of earnings. The same cannot be done with agricultural produce, which is not subject to multiplication. If a given piece of land is only large enough to sow a hundred (bushels) of wheat, it is impossible to sow a hundred and fifty there. In manufacturing, by contrast, production can be multiplied not merely twofold but a hundredfold, and at a proportionately lower cost.

Third, the sale of manufactured products is more certain than that of agricultural produce, and this certainty of sale means a greater certainty of profit. For it is difficult to preserve agricultural produce for a long time without its deteriorating, so it is risky to export from country to another one far away; and it is also risky to preserve it for the future, should it not be sold immediately. Manufactured products, on the other hand, can easily be preserved even for long periods, so they can easily be exported to far off lands. And since navigation—the only art in which the moderns surpass the ancients—has been so greatly facilitated that trade is carried on not merely between east and west and north and south, but even between one hemisphere and the other, and goods can be easily transported from one to the other, who will deny that the sale of manufactured products is more certain and more profitable than that of agricultural produce?

Fourth and last, manufactured goods generally yield much higher earnings than agricultural produce. ... For all these reasons the accident of a multiplicity of manufacturing activities is more important than that of domestic agricultural surplus."

(From Antonio Serra—*A Short Treatise on the Wealth and Poverty of Nations*, 1613)

31. There is greater certainty in manufacturing activities than in agriculture because
- (a) it is subject to increasing returns
 - (b) it relies only on human labour
 - (c) the manufacturing worker must always keep working
 - (d) manufacturing products are diverse
32. Manufacturing offers the possibility of more likely profit than agriculture because
- (a) the variety of manufacturing products is greater than the variety of agricultural produce
 - (b) it used to be risky to export from one country to another country that is far away
 - (c) both storage and transport are easier for manufactured goods
 - (d) manufacturing products are diverse
33. Serra believed that
- (a) agriculture and manufacturing are both subject to increasing returns
 - (b) only manufacturing is subject to increasing returns
 - (c) neither activity is subject to increasing returns
 - (d) increasing returns are not relevant in a discussion of economic activity

34. The significance of advances in navigation for Serra is that
- (a) it enables improved transport of agricultural produce to make up for losses when the weather is bad
 - (b) it proves that the moderns have surpassed the ancients
 - (c) it gets rid of the difficulty of preserving goods for the future
 - (d) it makes profits from manufacturing more certain by expanding potential markets
35. According to Serra, manufacturing
- (a) generates higher value added than agriculture
 - (b) is desirable only when the quantities produced exceed the needs of the country
 - (c) is always in a multiplicity that exceeds the agricultural surplus
 - (d) always makes a kingdom or a city abound in money

Answer Question Nos. 36-38 on the basis of the information given below :

A salesman visits only five different cities—Pune, Bengaluru, Chandigarh, Bhopal and Lucknow. Every year the salesman visits exactly three cities according to the following restrictions :

If the salesman visits Bengaluru, the salesman also visits Pune that year.

If the salesman visits Chandigarh one year, the salesman does not visit it the next year.

In any year, the salesman visits no more than one of the cities he visited in the previous year.

36. Which of the following is a possible sequence of combinations for the salesman to visit in two successive years?
- (a) Year 1 : Pune, Bengaluru, Chandigarh; Year 2 : Bengaluru, Bhopal, Lucknow
 - (b) Year 1 : Pune, Bengaluru, Bhopal; Year 2 : Pune, Bengaluru, Lucknow
 - (c) Year 1 : Pune, Bhopal, Lucknow; Year 2 : Pune, Bengaluru, Chandigarh
 - (d) Year 1 : Bengaluru, Bhopal, Lucknow; Year 2 : Pune, Chandigarh, Bhopal

37. If the salesman visits Pune, Bengaluru and Chandigarh in the first year, which of the following combinations must be visited in the third year?
- (a) Pune, Bengaluru and Chandigarh
 (b) Pune, Bengaluru and Bhopal
 (c) Pune, Chandigarh and Bhopal
 (d) Chandigarh, Bhopal and Lucknow
38. If the salesman visits Pune, Lucknow and Bhopal in the first year, which of the following combinations must be visited in the eleventh year?
- (a) Pune, Lucknow and Bhopal
 (b) Pune, Bengaluru and Bhopal
 (c) Pune, Chandigarh and Bhopal
 (d) Chandigarh, Bhopal and Lucknow

Answer Question Nos. 39 and 40 on the basis of the table below pertaining to an economy :

Year 1	Year 2	← Year / Item	
3353748	3864617	1	Final consumption expenditure
x_a	1821099	2	Gross fixed capital formation
255126	179004	3	Change in stocks
1018907	1328765	4	Exports of goods and services
1219109	1614040	5	Imports of goods and services
5050345	x_b	6	Gross domestic product at market prices

39. The value of x_a has to be
- (a) 1896799
 (b) 1641673
 (c) 1751521
 (d) 2151924
40. The value of x_b has to be
- (a) 5579445
 (b) 5400441
 (c) 6149995
 (d) 5970991

Section—B

Each question carries 2 marks

41. An economy's output in year 0 is 10 percent below its maximum potential output and the maximum potential output steadily increases at the rate of 5 percent per annum after that. In such circumstances, for how many years would it be possible for that economy to maintain a 6 percent per annum rate of growth of actual output?
- (a) Not possible at all
 - (b) 5 years
 - (c) 11 years
 - (d) 15 years
42. In the fixed price IS-LM model, which of the following is true if we compare the effects of an **increase** in government expenditure (X) with that of a **reduction** in money supply (Y)?
- (a) Both will result in an increase in output but while X will be accompanied by a rise in the interest rate Y will reduce the interest rate
 - (b) X and Y will have opposite effects on output but the same effect on the interest rate
 - (c) X and Y will have the same effect on output but opposite effects on the interest rate
 - (d) X will have an adverse effect on output because it will raise the level of the fiscal deficit while Y will result in an increase in output by reducing the interest rate
43. Consider a Cournot duopoly in a homogeneous product market where firm 1's output is x and firm 2's output is y . The inverse demand function is given by $P = e^{-(x+y)}$. Costs are zero for all levels of output for both firms. At a Cournot equilibrium
- (a) each firm produces one unit of output
 - (b) each firm produces two units of output
 - (c) firm 1 produces one unit of output and firm 2 produces two units of output
 - (d) there is no Cournot equilibrium
44. Let $f(x)$ be a differentiable function defined over the interval $[0, 2]$. It is given that $f(0) = 1$ and $f(x) \leq 0 \rightarrow f'(x) > 0$. Then
- (a) $f(x) < 0$ for some x in the interval $(0, 2]$
 - (b) $f(x) \geq 0$ for all x in the interval $[0, 2]$
 - (c) $f(x) = 0$ for all x in the interval $[0, 1]$
 - (d) $f(x)$ is strictly positive for all $0 < x < 1$ and $f(x)$ is strictly negative for all $1 < x < 2$

45. A monopolist faces the following demand function $D(P)$:

$$D(P) = 10 \text{ for } P \text{ in the interval } [0, 10]$$

$$= 20 - P \text{ for } P \text{ in the interval } (10, 20)$$

$$= 0 \text{ for } P \text{ in the interval } [20, \infty)$$

Now suppose that the monopolist has zero variable cost of production. However, if it produces any positive amount, it must incur a fixed cost of ₹ 50. What is the optimal monopoly price?

- (a) 15
(b) 10
(c) 5
(d) There is no monopoly equilibrium
46. If you maximize $f(x) = 2/x^3$, subject to $0 < x < 1$, then the maximum value of $f(x)$ is obtained at
- (a) 0
(b) 1
(c) 1/2
(d) $f(x)$ has no maxima for the case $0 < x < 1$
47. In the Simple Keynesian model, if an increase in the level of investment is accompanied by a reduction in the propensity to save, the combined effect of these would be
- (a) an increase in the levels of savings and output
(b) an increase in the level of savings but a reduction in the level of output
(c) a reduction in savings but an increase in output
(d) either a reduction or an increase in savings but a definite increase in output
48. In the AD-AS model, the level of aggregate demand can influence the level of output
- (a) if and only if aggregate supply has a positive relationship with the price level
(b) if and only if the price level is constant
(c) if and only if aggregate supply is not invariant with changes in the price level
(d) if and only if aggregate supply is invariant with changes in the price level
49. If you integrate $e^x + xe^x$ over the interval $[0, 1]$, you get
- (a) 1
(b) 0
(c) $\frac{1}{2}$
(d) e^1

50. Which of the following functions has a degree of homogeneity not equal to unity?
- (a) $Q = 100K^{1/4}L^{3/4}$
- (b) $Q = 20K^{0.5}L^{0.5}$
- (c) $Q = K^2 + 2KL + L^2$
- (d) $Q = (K^2 + 2KL + L^2)^{1/2}$
51. Suppose a consumer's preferences over commodities 1 and 2 can be represented by the utility function $U(x_1, x_2) = \min\{x_1, x_2\} + \max\{x_1, x_2\}$, where $x_1, x_2 \geq 0$. The prices of the two commodities are 1 and 2 respectively and the consumer's income is 150. Which of the following is true?
- (a) At the optimum, the consumer should consume 150 units of commodity 1 and none of commodity 2
- (b) At the optimum, the consumer should consume 75 units of commodity 2 and none of commodity 1
- (c) At the optimum, the consumer should consume 50 units of commodity 1 and 50 units of commodity 2
- (d) At the optimum, the consumer should spend equal amounts on the two commodities
52. Consider the following optimization problems :
1. Maximize $f(x, y)$ subject to $x - 2y = 1$ and $3x + 2y = 11$
 2. Minimize $f(x, y)$ subject to $x - 2y = 1$ and $3x + 2y = 11$
- Which of the following is true?
- (a) The two problems have the same solution
- (b) The solutions to the two problems are different
- (c) Neither of the problems has a solution
- (d) Nothing can be said about the solutions to the problems unless the objective function is completely specified
53. If units of good 1 are measured on the horizontal axis and its price is p per unit whereas units of good 2 are measured on the vertical axis and its price is q per unit, the slope of the budget line is then given by
- (a) p/q
- (b) $-p/q$
- (c) q/p
- (d) $-q/p$

54. There are three commodities—the first commodity has a negative price, -1 per unit; the second commodity is priced at $+1$ per unit while the third is priced at $+2$ per unit. Income of the person is ₹ 100 per day. Then which one of the following is **not** true?
- (a) An individual may afford to consume positive amounts of each per day
 - (b) An individual may afford to consume any amounts of goods 2 and 3 per day
 - (c) Any individual may afford to consume $(0, 0, 60)$
 - (d) An individual may afford to consume $(20, 0, 60)$
55. Among twenty-five articles, nine are defective, six having only minor defects and three having major defects. Determine the probability that an article selected at random has major defects given that it has defects.
- (a) $1/3$
 - (b) $1/4$
 - (c) $6/25$
 - (d) None of the above
56. The arithmetic mean of passengers on a metro car is 60. If the number of passengers on a car has a normal distribution with a standard deviation of 20, approximately what percent of metro cars carry more than 80 passengers?
- (a) 16%
 - (b) 48%
 - (c) 68%
 - (d) 88%
57. Satish is very conscious about the food he eats. He only eats *rotis* and *dal*; a cup of *dal* costs ₹ 2 while each *roti* costs ₹ 1 and Satish decides to spend only ₹ 13 per day on food. Also he decides to consume exactly 5500 calories a day; he has been told that each *roti* has 1000 calories while each cup of *dal* has 500 calories. He spends his entire money allocated on foods. Then
- (a) he consumes 3 *rotis* and 5 cups of *dal*
 - (b) he consumes no more than 3 *rotis* per day
 - (c) he consumes no more than 5 cups of *dal* per day
 - (d) Unless we are given some more information about preferences, we cannot say what Satish does

58. Let X, Y, Z be statements. Suppose we know that 'if X then Y ' is true, and that 'if Y then Z ' is true. We also know that Y is false. We can infer that
- (a) X is true
 - (b) X is false
 - (c) Z is true
 - (d) Z is false
59. Let X and Y be statements. If we want to disprove the claim that ' X implies Y ', we need to show that
- (a) X is false
 - (b) Y is false
 - (c) X is true but Y is false
 - (d) Y is true but X is false
60. Let X, Y, Z be statements. Suppose we know that ' X implies Y ', and that ' Z implies X '. We also know that Y is false. We can infer that
- (a) X is false and Z is true
 - (b) X is true and Z is false
 - (c) both X and Z are true
 - (d) both X and Z are false
61. Let X and Y be statements. Which of the following strategies is **not** a valid way to show that ' X implies Y '?
- (a) Assume that Y is false, and then use this to show that X is false
 - (b) Show that some statement Z implies Y , and then show that X implies Z
 - (c) Show that either X is false, or Y is true, or both
 - (d) Assume that X is false, and Y is true, and deduce a contradiction

62. Let X and Y be statements. If we know that ' X implies Y ', then we can also conclude that
- (a) X is true and Y is also true
 - (b) if X is false, then Y is false
 - (c) if Y is true, then X is true
 - (d) None of the above

63. Let X, Y, Z be statements. Suppose we know that ' X implies Y ', and that ' Y implies Z '. If we also know that X is false, we can infer that
- (a) both Y and Z are true
 - (b) Y is true and Z is false
 - (c) Y is false and Z is true
 - (d) None of the above

64. Let x, y and z be arbitrary real numbers. Then we must have
- (a) $x > y \rightarrow xz > yz$
 - (b) $x > y \rightarrow x - z > y - z$
 - (c) $x > y \rightarrow x/z > y/z$
 - (d) $x > y \rightarrow 1/x > 1/y$

65. The mean of the following sample

X	Frequency of X
2	1
3	2
4	3

is

- (a) 3
- (b) 2
- (c) 3.33
- (d) 2.22

Answer Question Nos. 66-70 on the basis of the table below pertaining to an economy :

Year 1	Year 2	Year 3	Year 4	Year 5	⇐ Year / Item	
4705447	5411104	6406834	7434965	y_e	1	National income
600612	620370	825175	y_d	1153503	2	Indirect taxes
274116	251446	289920	349625	429098	3	Subsidies
y_a				8980383	4	Net national income at market prices
- 32923	- 38000	y_c	- 76830	- 116766	5	Net factor income from abroad
4738370	y_b	6488641	7511795	8372744	6	Net domestic product at factor cost

66. The value of y_a has to be
- 5031943
 - 5580175
 - 5064866
 - 4705447
67. The value of y_b has to be
- 5818028
 - 5780028
 - 5411104
 - 5449104
68. The value of y_c has to be
- 535255
 - 453448
 - 81807
 - Cannot be determined from the given data
69. The value of y_d has to be
- 272795
 - 426455
 - 76830
 - Cannot be determined from the given data
70. The value of y_e has to be
- 8980383
 - 8372744
 - 9097149
 - 8255978

SPACE FOR ROUGH WORK

30

QUESTION PAPER
SERIES CODE

A

Registration No. :

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Centre of Exam. :

Name of Candidate :

Signature of Invigilator

ENTRANCE EXAMINATION, 2014
M.A. ECONOMICS
[Field of Study Code : ECOM (216)]

Time Allowed : 3 hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

Candidates must read carefully the following instructions before attempting the Question Paper :

- (i) Write your Name and Registration Number in the space provided on the top of this Question Paper and in the Answer Sheet.
- (ii) **Please darken the appropriate Circle of Question Paper Series Code on the Answer Sheet.**
- (iii) All questions are compulsory.
- (iv) Answer all the questions in the Answer Sheet provided for the purpose by darkening the correct choice, i.e., (a) or (b) or (c) or (d) with a BALLPOINT PEN only against the corresponding circle. Any overwriting or alteration will be treated as wrong answer.
- (v) Each correct answer in Section—A carries 1 mark and each correct answer in Section—B carries 2 marks.
- (vi) **There will be negative marking and for each wrong answer, $\frac{1}{4}$ mark would be deducted for 1 mark questions and $\frac{1}{2}$ mark would be deducted for 2 marks questions.**
- (vii) Answer written by the candidates inside the Question Paper will not be evaluated.
- (viii) Pages at the end have been provided for Rough Work.
- (ix) Simple calculators may be used for calculations.
- (x) Return the Question Paper and Answer Sheet to the Invigilator at the end of the Entrance Examination.
DO NOT FOLD THE ANSWER SHEET.

INSTRUCTIONS FOR MARKING ANSWERS

1. Use only Blue/Black Ballpoint Pen (do not use pencil) to darken the appropriate Circle.
2. Please darken the whole Circle.
3. Darken ONLY ONE CIRCLE for each question as shown in example below :

Wrong ● (b) (c) ●	Wrong ⊗ (b) (c) (d)	Wrong ⊗ (b) (c) ⊗	Wrong ● (b) (c) ●	Correct ● (a) (b) (c) ●
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4. Once marked, no change in the answer is allowed.
5. Please do not make any stray marks on the Answer Sheet.
6. Do rough work only on the pages provided for this purpose.
7. Mark your answer only in the appropriate space against the number corresponding to the question.
8. **Ensure that you have darkened the appropriate Circle of Question Paper Series Code on the Answer Sheet.**

Section—A

Each question carries 1 mark

Answer Question Nos. 1–10 on the basis of the following information :

<i>Expenditure on Gross Domestic Product (in ₹ 100 billion)</i>				
<i>At Current Prices</i>	<i>2009–10</i>	<i>2010–11</i>	<i>2011–12</i>	<i>2012–13</i>
1. Final consumption expenditure	448	525	617	696
1.1 Government final consumption expenditure	77	89	103	119
1.2 Private final consumption expenditure	371	436	514	577
2. Gross fixed capital formation	206	241	286	307
3. Change in stocks	18	27	17	17
4. Valuables	12	16	25	27
5. Exports of goods and services	130	171	215	243
5.1 Export of goods	85	114	147	163
5.2 Export of services	45	57	68	79
6. Import of goods and services	165	205	272	311
6.1 Import of goods	136	168	235	267
6.2 Import of services	28	37	38	44
7. Discrepancies	0	3	14	32
8. Expenditure on gross domestic product	A	B	C	D
<i>At Constant 2004–05 Prices</i>	<i>2009–10</i>	<i>2010–11</i>	<i>2011–12</i>	<i>2012–13</i>
1. Final consumption expenditure	340	368	400	421
1.1 Government final consumption expenditure	55	58	62	66
1.2 Private final consumption expenditure	285	309	338	355
2. Gross fixed capital formation	159	177	199	200
3. Change in stocks	14	21	12	11
4. Valuables	9	13	13	18
5. Exports of goods and services	100	120	138	145
5.1 Export of goods	66	82	96	100
5.2 Export of services	34	38	42	45
6. Import of goods and services	133	154	187	199
6.1 Import of goods	112	127	163	174
6.2 Import of services	21	27	23	25
7. Discrepancies	-10	-15	-12	-6
8. Expenditure on gross domestic product	479	X	Y	Z

Source : CSO Press Note dated 31st January, 2014

1. D (i.e., expenditure on GDP at current prices in 2012–13) is equal to
- 1011
 - 1568
 - 1633
 - 2883

2. Growth rate during 2012–13 has been estimated to be
 - (a) 12.25%
 - (b) 10.91%
 - (c) 6.50%
 - (d) 4.74%

3. GDP deflator during 2012–13 has been estimated to be
 - (a) 1.6
 - (b) 1.7
 - (c) 1.8
 - (d) 1.9

4. As compared to 2010–11, the growth rate in 2012–13 has come down by
 - (a) 7.9 percentage points
 - (b) 5.5 percentage points
 - (c) 3.5 percentage points
 - (d) 1.9 percentage points

5. The current account deficit at current price as proportion of GDP during 2012–13 has been estimated to be
 - (a) 5.34%
 - (b) 6.74%
 - (c) 9.15%
 - (d) 11.55%

6. Investment rate (excluding valuables) at constant prices during 2012–13 has been estimated to be
 - (a) 14%
 - (b) 24%
 - (c) 34%
 - (d) 44%

7. Private consumption-GDP ratio at current prices during 2011-12 has been estimated to be
- (a) 50%
 - (b) 57%
 - (c) 65%
 - (d) None of the above
8. By 2012-13, in Indian economy, the degree of openness has crossed
- (a) 50%
 - (b) 60%
 - (c) All of the above
 - (d) None of the above
9. The inflation based on GDP deflator during 2012-13 has been estimated to be
- (a) 10%
 - (b) 9%
 - (c) 8.5%
 - (d) 7.2%
10. "At current prices, the gross fixed capital formation of the public sector has increased by 23.5% from 6.4 lakh crore in 2011-12 to 7.9 lakh crore in 2012-13, that of private corporate sector by 0.8% from 8.5 lakh crore in 2011-12 to 8.6 lakh crore in 2012-13, and the household sector by 3.9% from 13.7 lakh crore in 2011-12 to 14.3 lakh crore in 2012-13." The government expenditure to GDP ratio in 2012-13 would then approximately be
- (a) 15%
 - (b) 20%
 - (c) 25%
 - (d) 30%

Answer Question Nos. 11–15 on the basis of the following passage :

“The denial of the crucial role of the interest rate as equilibrator of savings and investment led directly to the Keynesian theory of employment determinants. Given the ‘propensity to consume’ and hence the proportion of any given income that will be spent by individual consumers (on which the size of R. F. Kahn’s ‘multiplier’ depends), the level of output and employment will be a function of investment. According to the level at which investment (also consumption) stands, the level of output and employment may be almost anything between zero and full capacity output. There is at any rate no longer any unique level to which the system is necessarily tending. So far as investment consists of private investment, it will remain governed by the ‘marginal efficiency of capital’ (anticipated profitability), modified, on the one hand, by ‘expectations’ (powerfully swayed by ‘business mood’ and the like) and on the other hand by the cost of borrowing, namely the prevailing rate of interest. Thus was the causal emphasis of theory reversed : instead of any change in saving being translated into an equivalent shift of investment, investment became the independent and (via income changes) the volume of savings the dependent variable.

Interest was converted virtually into a *money* rate—something influenced on the one hand by monetary policy (affecting the supply of money available) and on the other hand by the current attitude towards it as something worth holding (*qua* bank deposit e.g.) in preference to other assets (e.g. bonds). This latter constituted the famous ‘liquidity preference’—a preference powerfully influenced by expectations (or uncertainty) about *future* movements of interest rates (and hence of bond prices).”

—From Maurice Dobb, *Theories of Value and Distribution since Adam Smith*, page 218–9

11. There is no unique level of output and employment to which the economic system tends, because
- (a) investment consists only of private investment
 - (b) investment determines the level of output and can vary
 - (c) changes in saving are translated into an equivalent level of investment
 - (d) investment depends upon the propensity to consume
12. The ‘multiplier’ referred to here relates to
- (a) the propensity to consume which determines how much consumers spend
 - (b) the change in employment consequent upon a change in output
 - (c) the change in output consequent upon a change in investment
 - (d) the number that equilibrates saving and investment

13. Expectations

- (a) determine the prevailing rate of interest
- (b) contribute to liquidity preference
- (c) govern the cost of borrowing
- (d) determine the money supply

14. Keynes treated the interest rate as

- (a) entirely determined by expectations about the future
- (b) the rate at which current savings and investment are equilibrated
- (c) reflecting both monetary policy and liquidity preference
- (d) an indicator of expected profitability

15. Liquidity preference

- (a) is about holding money relative to other assets
- (b) is the difference between bond prices and interest rates
- (c) affects the supply of money
- (d) is unrelated to any of the above

16. The Malthusian principle of growth of human population argues that

- (a) population growth is constrained by the rate of growth of food production
- (b) human population growth has been restricted by changes in climatic conditions
- (c) expansion of human population leads to migration to less densely populated areas
- (d) historically population growth has been constrained by decline in gross fertility rate

17. Suppose that the exchange rate of the Indian rupee appreciates by 10% and, over the same period, inflation in India be 8% and inflation in India's trading partners is 3%. What is the change in India's real exchange rate?

- (a) 5% appreciation
- (b) 10% appreciation
- (c) 15% appreciation
- (d) 5% depreciation

18. Consider a country *A* whose citizens working abroad remit to the country in a particular year an amount in local currency units (LCUs) that is 250 LCUs more than what foreigners working in *A* are remitting to their parent countries. Foreign firms operating in *A* repatriate profits to their home countries that exceed the profits repatriated to *A* by its firms operating abroad by 750 LCUs. If GDP in the relevant year is 50,000 LCUs and there are no other cross-border flows of income, the country's GNP would be
- (a) 50,500 LCUs
 - (b) 49,500 LCUs
 - (c) 49,750 LCUs
 - (d) 50,750 LCUs
19. Which of the following is an example of pure public good?
- (a) National defence
 - (b) Fire protection
 - (c) Congested highway
 - (d) All of the above
20. The free rider problem is typically known as
- (a) the reluctance of individuals to contribute voluntarily for the provisioning of the public goods
 - (b) journey without ticket in train
 - (c) watching movie without ticket in cinema hall
 - (d) the reluctance of individuals to contribute voluntarily for the provisioning of the Giffen goods
21. 'Club goods' are
- (a) non-rivalrous and non-excludable
 - (b) rivalrous but non-excludable
 - (c) excludable but non-rivalrous
 - (d) rivalrous as well as excludable

- 22.** If the quantity demanded of rice increases by 5% when the price of wheat increases by 20%, the cross-price elasticity of demand for rice would be
- (a) - 4
 - (b) - 0.25
 - (c) 0.25
 - (d) 4
- 23.** Suppose the demand for good *Z* goes up when the price of good *Y* goes down. We can say that goods *Z* and *Y* are
- (a) complements
 - (b) perfect substitutes
 - (c) unrelated goods
 - (d) substitutes
- 24.** In the long run, existing firms exit a perfectly competitive market, when
- (a) economic profits are zero
 - (b) economic profits are greater than zero
 - (c) normal profits are greater than zero
 - (d) they incur an economic loss
- 25.** Which of the following statements is correct?
- (a) The compensated demand curve of a commodity is always steeper than the ordinary demand curve of the commodity
 - (b) The ordinary demand curve of a commodity is always steeper than the compensated demand curve of the commodity
 - (c) The compensated demand curve of a commodity always has the same slope as the ordinary demand curve of the commodity
 - (d) None of the above
- 26.** When speaking of the 'invisible hand', Adam Smith was referring to
- (a) competition of a kind that would lead an individual pursuing his private interest to serve the public interest
 - (b) competition of a kind that would lead the individual pursuing his private interest to pursue private interest
 - (c) a situation where a person works in the public interest without showing himself
 - (d) None of the above

27. The purchasing power parity exchange rate is determined by
- (a) the nominal exchange rate
 - (b) the central bank
 - (c) the relative price levels of the two countries
 - (d) foreign exchange markets
28. Over the financial year 2013-14, India's foreign exchange reserves increased by more than \$ 5 billion. This was because
- (a) the country ran a surplus on the current account of its balance of payments
 - (b) the country ran a deficit on the budget of the central government
 - (c) the country was a net recipient of capital flows besides recording a current account surplus
 - (d) the country was a net recipient of capital flows which exceeded the size of its current account deficit
29. Let us assume that the GDP of some country was ₹ 100 at current prices in 2012-13 and that was ₹ 90 in 2011-12; and that the GDP at constant 2004-05 prices was ₹ 59 in 2012-13 and that was ₹ 56.1 in 2011-12, then the GDP of 2011-12 at 2012-13 (constant) prices would be
- (a) ₹ 59.1
 - (b) ₹ 90
 - (c) ₹ 95.1
 - (d) ₹ 100
30. As the captain of Indian cricket team, if Sachin Tendulkar is assumed to have observed the rule of calling 'head' every time the toss was made during the five matches of the one-day series, then what is the probability of winning the toss by India in all five matches?
- (a) $1/2$
 - (b) $1/5$
 - (c) $(1/2)^5$
 - (d) $(1/5)^2$

Section—B

Each question carries 2 marks

31. Consider the inequality $[(4/x) - 5] < 6$. Which of the following statements is true?
- (a) $x > 5$ is sufficient for the inequality to hold
 - (b) $x > 5$ is both necessary and sufficient for the inequality to hold
 - (c) $x > 5$ is neither necessary nor sufficient for the inequality to hold
 - (d) $x > 5$ is necessary for the inequality to hold

Answer Question Nos. 32–34 on the basis of the following information :

Three individuals, A, B and C, are suspected of income tax evasion. They testify under oath as follows :

A : B is guilty and C is innocent.

B : If A is guilty, then so is C.

C : I'm innocent but at least one of the others is guilty.

32. Which of the following is true?
- (a) Testimony of A follows from testimony of B
 - (b) Testimony of B follows from testimony of A
 - (c) Testimony of C follows from testimony of A
 - (d) Testimony of A follows from testimony of C
33. Assuming everybody's testimony to be true, who is innocent and who is guilty?
- (a) A and C are innocent and B is guilty
 - (b) B and C are innocent and A is guilty
 - (c) C is the only innocent individual
 - (d) All three are innocent

34. Assuming the innocent told the truth and the guilty told lies, who is innocent and who is guilty?
- (a) A and C are innocent and B is guilty
 - (b) B and C are innocent and A is guilty
 - (c) A and B are innocent and C is guilty
 - (d) C is the only innocent individual
35. An outward shift of the production possibility frontier may be caused by
- (a) an increase in demand
 - (b) more government spending
 - (c) better training of employees
 - (d) productive inefficiency

Answer Question Nos. 36–38 on the basis of the following information :

Suppose in an economy in any period t the aggregate value of output is $Y(t) = C(t) + I(t)$, the sum of aggregate consumption and investment expenditures.

36. Suppose $C(t) = 0.6Y(t) + 0.3Y(t - 1)$ and $I(t) = 1000$ for all t . What is the only value of output which, once attained in this economy, will continue to persist over time?
- (a) 2000
 - (b) 2500
 - (c) 4000
 - (d) 10000
37. Suppose $C(t) = 0.6Y(t) + 0.3Y(t - 1)$ and $I(t) = 600 + 0.1Y(t)$ for all t and $Y(0) = 40000$. What is the rate of growth of output in the economy in period 1?
- (a) 2%
 - (b) 5%
 - (c) 7.5%
 - (d) 12%
38. Suppose $C(t) = 0.6Y(t) + 0.3Y(t - 1)$ and $I(t) = 2.4[Y(t) - Y(t - 1)]$ for all t . What is the rate of growth of output in the economy?
- (a) 2%
 - (b) 5%
 - (c) 7.5%
 - (d) 12%

Answer Question Nos. 39–41 on the basis of the following information

Suppose in economies A and B the aggregate value of output is $Y = C + G$, the sum of aggregate consumption and lump-sum government expenditures. The government imposes only lump-sum direct taxes and suppose T denotes the aggregate value of such taxes collected by the government. $C = a + bY_d$, where a is the value of autonomous consumption expenditures, b is the constant marginal propensity to consume out of income and Y_d is the aggregate value of disposable incomes in the economy. The value of b is higher in B than in A .

39. Suppose $T = 0$ in economies A and B and the value of a is also the same in both economies. Suppose the value of G is higher in economy B than in economy A . In which economy will aggregate private savings be higher?
- (a) A
 - (b) B
 - (c) Will be the same in both economies
 - (d) More information is needed to answer the question
40. Suppose the values of a and G are the same in both economies. Suppose the value of T is higher in economy B than in economy A . In which economy will aggregate private saving be higher?
- (a) A
 - (b) B
 - (c) Will be the same in both economies
 - (d) More information is needed to answer the question
41. Suppose the value of $G - T$ is the same in both economies. Suppose that the value of a is higher in economy B than in economy A . In which economy will aggregate private saving be higher?
- (a) A
 - (b) B
 - (c) Will be the same in both economies
 - (d) More information is needed to answer the question

Answer Question Nos. **42-44** on the basis of the following information :

Suppose there is a closed economy without government expenditure or taxation in which aggregate consumption expenditure C is the following function of aggregate income Y and the rate of interest (expressed per cent) r : $C = 388 + 0.75Y - 15r$. Suppose investment expenditure I is given by the following function : $I = 1863 + 0.05Y - 25r$

- 42.** What is the value of the slope of the IS curve for this economy?
- (a) -0.0175
 - (b) -0.02
 - (c) -0.025
 - (d) None of the above
- 43.** If the rate of interest is fixed at 15%, what is the value of aggregate income at which the values of demand and supply for goods and services are equalized in the economy?
- (a) 5575
 - (b) 6825
 - (c) 7675
 - (d) 8255
- 44.** Suppose the rate of interest falls from 15% to 6%. What is the change in the value of aggregate income at which demand and supply for goods and services are equalized in the economy?
- (a) 1800
 - (b) 4590
 - (c) 2790
 - (d) None of the above

Answer Question Nos. **45-48** on the basis of the following information :

Consider a firm which is a monopolist in each of two completely segregated markets A and B . The total cost of the monopolist C is the following function of its total output Q : $C = 10 + 4Q$. The equations for the demand curves faced by the monopolist in markets A and B are $P_A = 16 - Q_A$ and $P_B = 36 - 4Q_B$ respectively.

- 45.** What is the profit-maximizing price for the firm in market A ?
- (a) 4
 - (b) 6
 - (c) 8
 - (d) 10

46. What is the profit-maximizing price for the firm in market B ?
- (a) 10
 - (b) 12
 - (c) 16
 - (d) 20
47. What is the profit-maximizing level of total output for the firm?
- (a) 6
 - (b) 10
 - (c) 12
 - (d) 14
48. What is the maximum level of total profits which can be earned by the monopolist?
- (a) 64
 - (b) 72
 - (c) 90
 - (d) 105
49. If $f(x) = \sin x^2$, then what is the value of $f'(-\sqrt{\pi})$?
- (a) 0
 - (b) $-2\sqrt{\pi}$
 - (c) -2π
 - (d) $2\sqrt{\pi}$
50. A set of 16 real numbers each number is multiplied by a positive real number. After multiplication, the variance of the resulting set of numbers is found to be 6.25 times the variance of the set of numbers before multiplication. What is the number which was used to multiply all the observations?
- (a) 4
 - (b) 6.25
 - (c) 12.5
 - (d) None of the above

51. Suppose two dice are rolled. What is the probability that the sum of the points on the two dice is 8, if it is known that the sum is an even number?
- (a) $1/12$
 - (b) $5/36$
 - (c) $1/6$
 - (d) $5/18$

Answer Question Nos. 52-54 on the basis of the following information :

The behaviour of a variable x over time is described by $dx/dt = x^2 - x$ (where t is the variable denoting time).

52. Suppose at the initial point in time x has a negative value. What happens to the value of x over time?
- (a) Decreases without any bound
 - (b) Increases and approaches 0 over time
 - (c) Increases and approaches 1 over time
 - (d) Increases without any bound
53. Suppose at the initial point in time x has a positive value less than unity. What happens to the value of x over time?
- (a) Decreases without any bound
 - (b) Increases and approaches 0 over time
 - (c) Decreases and approaches 1 over time
 - (d) Increases without any bound
54. Suppose at the initial point in time x has a positive value greater than unity. What happens to the value of x over time?
- (a) Decreases without any bound
 - (b) Decreases and approaches 0 over time
 - (c) Decreases and approaches 1 over time
 - (d) Increases without any bound

55. What is the value of $\lim_{x \rightarrow 0^-} \left[\frac{|x|}{x} \right]$?
- (a) $-\infty$
(b) 0
(c) -1
(d) 1
56. Let $f(x) = [x]$, where $[x]$ denotes the greatest integer $\leq x$. On which of the following intervals is f a continuous function?
- (a) $[-2, -1]$
(b) $(-2, -1]$
(c) $[-2, -1)$
(d) None of the above
57. In the world of Indian stock markets, participatory notes refer to
- (a) permits given to foreign institutional investors registered to trade in Indian stock markets
(b) derivative instruments linked to shares (equity) of Indian firms sold to outside participants
(c) notes issued to lenders providing credit to participants in the stock markets
(d) permits given to brokerages to trade in stock markets
58. If the correlation coefficient between two random variables X and Y is given by r ($-1 < r < 1$) and the bivariate regression coefficient of Y on X is denoted by b_{yx} , which is greater than unity, then b_{xy} must be
- (a) greater than unity
(b) less than unity
(c) $1 - b_{yx}$
(d) $1/b_{yx}$

Answer Question Nos. **59–60** on the basis of the following information :

The mean value theorem states that if f is a continuous function on $[a, b]$ and is differentiable in (a, b) (a and b being any two real numbers), then there exists at least one real number $c \in (a, b)$ such that $f(b) - f(a) = f'(c)(b - a)$.

- 59.** Suppose $f(x) = x^2$, $a = 3$ and $b = 6$. Which of the following can be taken as a value of c ?
- (a) 4.4
 (b) 4.6
 (c) 4.8
 (d) None of the above
- 60.** Suppose $f(x) = x^3$, $a = -1$ and $b = 2$. How many value(s) of c is/are possible?
- (a) None
 (b) One
 (c) Two
 (d) Three

Answer Question Nos. **61–65** on the basis of the following information :

<i>Union Budget of India at a glance (in ₹ crore)</i>	<i>2014–15</i>
1. Tax Revenue (net to centre)	9,86,417
2. Non-tax Revenue	1,80,714
3. Capital Receipts	5,96,083
4. Recoveries of Loans	10,527
5. Other Receipts	56,925
6. Borrowing and other Liabilities	5,28,631
7. Non-plan Expenditure on Revenue Account	11,07,781
8. Of which, Interest Payments	4,27,011
9. Non-plan Expenditure on Capital Account	1,00,111
10. Plan Expenditure on Revenue Account	4,42,273
11. Plan Expenditure on Capital Account	1,13,049
12. Nominal GDP	1,28,39,952
13. Plan Expenditure to GDP Ratio	<i>A</i>
14. Capital Expenditure to GDP Ratio	<i>B</i>
15. Revenue Deficit to GDP Ratio	<i>C</i>
16. Fiscal Deficit to GDP Ratio	<i>D</i>
17. Primary Deficit to GDP Ratio	<i>E</i>

- 61.** A is equal to
- (a) 0.88%
 (b) 3.44%
 (c) 4.32%
 (d) None of the above

62. B is equal to

- (a) 0.88%
- (b) 0.78%
- (c) 1.66%
- (d) None of the above

63. C is equal to

- (a) -1.66%
- (b) 0.00%
- (c) 2.98%
- (d) None of the above

64. D is equal to

- (a) -0.53%
- (b) 0.00%
- (c) 3.33%
- (d) 4.12%

65. E is equal to

- (a) -3.33%
- (b) 0.00%
- (c) 0.79%
- (d) 1.32%

30

QUESTION PAPER
SERIES CODE

A

Registration No. :

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Centre of Exam. : _____

Name of Candidate : _____

Signature of Invigilator

ENTRANCE EXAMINATION, 2013

M.A. ECONOMICS

[Field of Study Code : ECOM (216)]

Time Allowed : 3 hours

Maximum Marks : 100

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INSTRUCTIONS FOR MARKING ANSWERS

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2. Please darken the whole Circle.
3. Darken ONLY ONE CIRCLE for each question as shown in example below :

Wrong ● (b) (c) ●	Wrong ⊗ (b) (c) (d)	Wrong ⊗ (b) (c) ⊗	Wrong ⊙ (b) (c) ●	Correct ● (a) (b) (c) ●
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4. Once marked, no change in the answer is allowed.
5. Please do not make any stray marks on the Answer Sheet.
6. Do rough work only on the pages provided for this purpose.
7. Mark your answer only in the appropriate space against the number corresponding to the question.
8. **Ensure that you have darkened the appropriate Circle of Question Paper Series Code on the Answer Sheet.**

1. The function $f(x) = \log_{10} x$ is continuous over the interval
- $(-a, a)$ where $a > 0$
 - $(-\infty, +\infty)$
 - $[-a, a]$ where $a > 0$
 - $(0, 1)$
2. Satish is very conscious about the food he eats. He only eats rotis and dal; a cup of dal costs ₹ 2, while each roti costs a rupee; and Satish decides to spend only ₹ 13 per day on food. He also decides to consume exactly 5500 calories a day; he has been told that each roti has 1000 calories while each cup of dal has 500 calories. He spends the entire money he has allocated to food. Then he consumes
- 3 rotis and 5 cups of dal
 - no more than 2 rotis per day
 - no more than 4 cups of dal per day
 - 3 rotis and 4 cups of dal per day
3. Let X and Y be random variables with $V[X] = 2$, $V[Y] = 4$ and $\text{cov}(X, Y) = 2$. Let $W = 2X + 3Y$. The $V[W]$ is
- 68
 - 44
 - 48
 - 16

4. Given the following data for an economy :

Gross domestic product at market prices	20,000
Gross domestic capital formation	5,000
Depreciation	4,000
Net exports	(-) 2,000
Net factor incomes from abroad	5,000

The economy's net domestic capital formation is

- 1,000
- 5,000
- 3,000
- (-) 1,000

5. The incidence of sales tax falls
- (a) on only consumers if demand is completely elastic
 - (b) on only retailers if demand is completely elastic
 - (c) on only retailers if demand is completely inelastic
 - (d) always on both consumers and retailers
6. When an economist refers to the long run, she is referring to
- (a) a length of time no shorter than 2 years
 - (b) a length of time no shorter than 1 month
 - (c) approximately the length of time such that all inputs remain fixed
 - (d) approximately the length of time such that all inputs are variable
7. Which of the following is indicative of an inverse relationship between X and Y ?
- (a) A scatter plot whose points are shaped like a circle
 - (b) A scatter plot with points mostly in the lower left and upper right quadrants
 - (c) A negative correlation coefficient
 - (d) A negative P -value for the correlation coefficient
8. Which of the following is not correct regarding the estimated slope of the regression line?
- (a) It is divided by its standard error to obtain its t -statistic
 - (b) It shows the change in Y for a unit change in X
 - (c) It is chosen so as to minimize the sum of squared errors
 - (d) It may effectively be regarded as zero if its P -value is below 0.01
9. Among twenty-five articles, nine are defective, six have only minor defects and three have major defects. The probability that, if a selected article is defective, then the defect is major is
- (a) $1/3$
 - (b) 0.25
 - (c) 0.24
 - (d) 0.08

Answer Question Nos. 10-15 on the basis of the following information :

An exclusive club is trying very hard to pick its members from the social elite. An exact election mechanism has been agreed upon that will ensure the entrance of only the most suave members from the group *A, B, C, D, E, F, G* and *H*. Being 'in' or 'out' of the club is determined by the following rules :

- If *A* is in, then *G* is out.
- If *H* is out, then *B* is in.
- If *D* is out, then *E* is out.
- If *H* is in, then *C* is in.
- If *B* is out, then *G* and *D* are out.

10. Which of the following is a complete group of people who could be in?
- (a) *A, F, G*
 - (b) *F, G, H, C, E, D*
 - (c) *E, D, H, C, B*
 - (d) *B, F, G, D, A*
11. If *B* is out, then who must be in?
- (a) *A*
 - (b) *C*
 - (c) *D*
 - (d) *E*
12. If *E* and *G* are in the club, then what other two people must also be in the club?
- (a) *B, A*
 - (b) *G, H*
 - (c) *H, D*
 - (d) *D, B*
13. If *B* and *D* are out of the club, then which of the following must be true?
- (a) At least two people are in the club
 - (b) At least three people are in the club
 - (c) At most four people are out of the club
 - (d) Exactly three people are out of the club

14. If seven people are in the club, then who could be out?

- (a) *A*
- (b) *B*
- (c) *E*
- (d) *C*

15. Who could be the only person in the club?

- (a) *A*
- (b) *B*
- (c) *C*
- (d) *F*

Answer Question Nos. 16–21 on the basis of the following information :

A number of species faced extinction during the Mesozoic era. Species *R*, *S*, *T*, *U*, *V*, *W* and *X* were species that all became extinct during this era and scientists have determined that their extinction occurred based on the following constraints :

- W* became extinct before *X*.
- U* became extinct after *T*.
- S* became extinct before *T*.
- X* became extinct before *U*.
- V* became extinct after *U*.
- S* became extinct before *W*.
- R* became extinct before *S*.

16. Which of the following species were the last two to go extinct?

- (a) *X*, *V*
- (b) *T*, *U*
- (c) *X*, *U*
- (d) *U*, *V*

17. Which of the following species could have been the fourth one to go extinct?

- (a) *S*
- (b) *V*
- (c) *W*
- (d) *R*

18. Which is the smallest number of species that could have gone extinct before T ?
- (a) Two
 - (b) Three
 - (c) Four
 - (d) Five
19. Which of the following must be true if X went extinct after T ?
- (a) Three species went extinct before T
 - (b) Three species went extinct after T
 - (c) Four species went extinct before T
 - (d) At least three species went extinct after T
20. How many possible orders are there for the species' extinction pattern?
- (a) One
 - (b) Two
 - (c) Three
 - (d) Four
21. If the constraints were changed and X were not required to become extinct before U , then which of the following is a possible order for the species' extinction?
- (a) W, R, S, T, U, X, V
 - (b) R, S, X, W, T, U, V
 - (c) R, X, S, W, T, U, V
 - (d) R, S, T, U, V, W, X
22. Between 1750 and 1900, India's share in world manufacturing output
- (a) increased from 2 percent to 15 percent
 - (b) increased from 7 percent to 25 percent
 - (c) fell from 25 percent to 2 percent
 - (d) stayed at around 15 percent

23. Between 1990-91 and 2000-01, the Tax/GDP ratio of the Central Government of India
- increased from around 8 percent to around 15 percent
 - increased from around 9 percent to around 11 percent
 - decreased from around 11 percent to around 9 percent
 - decreased from around 15 percent to around 8 percent
24. Which of the following is used to determine the value added in agriculture in India?
- Input-output approach
 - Weather predictions
 - Crop cutting experiments
 - Cost surveys of the Ministry of Agriculture
25. Take India's GDP in 2009-10 at ₹ 50,00,000 crore. Indians working abroad remit to the country ₹ 150 crore and foreigners working in India remit ₹ 100 crore out of the country. Foreign investors repatriate ₹ 50 crore and Indian business abroad brings in ₹ 10 crore. Then India's GNP in 2009-10 would have been
- ₹ 50,00,050 crore
 - ₹ 49,99,950 crore
 - ₹ 50,00,090 crore
 - ₹ 49,99,910 crore
26. National accounts of a country show the following :
- | | |
|---|-----|
| Net factor income from abroad | 10 |
| Income from private domestic industries | 780 |
| Income from governmental industries | 100 |
| Personal consumption expenditures | 500 |
| Government purchases | 250 |
| Exports | 40 |
| Imports | 60 |
| Depreciation | 30 |
- Then the net domestic product is
- 890
 - 880
 - 910
 - 660

27. The real rate of interest is normally calculated by
- (a) dividing the nominal interest rate by the price level
 - (b) subtracting the rate of inflation from the nominal interest rate
 - (c) dividing the rate of interest by the rate of inflation
 - (d) None of the above as it is set by the central bank

Answer Question Nos. 28–30 on the basis of the following information :

Consider an economy in which the consumption function is given by $C = 400 + 0.6(Y - T)$. Investment (I) is 120, government purchases (G) and taxes (T) are both 100.

28. The equilibrium level of income is
- (a) 1000
 - (b) 1200
 - (c) 1300
 - (d) 1400
29. If government purchases increase to 240, the new equilibrium level of income would be
- (a) 1700
 - (b) 1200
 - (c) 1400
 - (d) 1600
30. The government expenditure multiplier is
- (a) 2.5
 - (b) 3.5
 - (c) 4.5
 - (d) 1
31. Market capitalization in the Bombay Stock Exchange (BSE) rose by 100 percent in a single year. This means that
- (a) the Sensex rose by 100 percent during that year
 - (b) the value of shares traded at the BSE over the year increased by 100 percent when compared with the previous year
 - (c) the value of all outstanding shares of companies listed at the BSE rose by 100 percent
 - (d) the prices of every share listed at the BSE rose by 100 percent

- 32.** If an individual deposits a sum of money in a bank, then the amount of additional credit that the banking system can create is
- (a) a fraction of that sum defined by the cash reserve ratio
 - (b) a fraction of that sum defined by the statutory liquidity ratio
 - (c) a multiple of that sum defined by the cash reserve ratio
 - (d) a multiple of that sum defined by the statutory liquidity ratio
- 33.** Fuel and power have a weight of 15 percent in India's official wholesale price index. If there is a 20 percent increase in the price index for the fuel and power subgroup, then contribution this would make to inflation measured by the WPI would be
- (a) exactly 3 percentage points
 - (b) less than 3 percentage points
 - (c) more than 3 percentage points
 - (d) more than 10 percentage points
- 34.** The Bombay Stock Exchange Sensitive Index or Sensex is
- (a) a simple average of the stock prices of the top 500 companies by market capitalization
 - (b) a weighted average of the stock prices of the 500 most actively traded shares
 - (c) a weighted average of the stock prices of the 50 most actively traded shares
 - (d) a weighted average of the stock prices of a changing set of 30 actively traded stocks
- 35.** Which of the following indicators is not included in computing the human development indices calculated by the UNDP?
- (a) Life expectancy at birth
 - (b) Adult literacy rate
 - (c) Combined primary, secondary and tertiary enrolment
 - (d) Headcount poverty ratio
- 36.** An increase in the international reserves of an economy indicates that
- (a) ex ante savings are higher than ex ante investment
 - (b) ex ante savings are lower than ex ante investment
 - (c) ex ante savings are equal to ex ante investment
 - (d) Nothing can be said about ex ante savings or ex ante investment

- 37.** Stagflation describes a situation of
- (a) rising prices and rising output
 - (b) rising prices and falling or stagnant output
 - (c) falling or stagnant prices and rising output
 - (d) falling or stagnant prices and falling or stagnant output
- 38.** For the countries in the European Union that share a common currency, the euro, which of the following is correct?
- (a) It is impossible to have different real exchange rates from one another
 - (b) It is possible to have real exchange rates that are different from one another
 - (c) The nominal and real exchange rates will always vary according to capital flows
 - (d) The concept of real exchange rate is not relevant
- 39.** In recent years, the bottom 20 percent of the world's population are estimated to receive global income
- (a) less than 1 percent
 - (b) around 3 percent
 - (c) around 5 percent
 - (d) around 10 percent
- 40.** If an economy is a price taker in world markets for both export and import, the real exchange rate devaluation
- (a) will have no effect on the balance of trade
 - (b) will cause the balance of trade to improve
 - (c) will cause the balance of trade to deteriorate
 - (d) will turn a trade deficit into a balance
- 41.** The 'Gold Standard' refers to an international currency regime under which
- (a) only gold was used in international transactions
 - (b) only gold was used as money in domestic transactions
 - (c) countries officially linked their money supply to a specific value of gold
 - (d) countries officially linked the value of their money to a specific weight of gold

42. Currently, State Governments receive approximately which of the following shares of the Central Government's gross tax collection?
- (a) 22 percent
 - (b) 25 percent
 - (c) 32 percent
 - (d) 40 percent
43. Consider the following statements about a two-person simultaneous-move game in which each person has two pure strategies :
- (i) *If the game has a unique Nash equilibrium which is Pareto-dominated by some other strategy profile, then it is a prisoner's dilemma game.*
 - (ii) *If the game is a prisoner's dilemma game, then it has a unique Nash equilibrium which is Pareto-dominated by some other strategy profile.*
- Which of the following is true?
- (a) (i) is true but (ii) is false
 - (b) (i) is false but (ii) is true
 - (c) Both (i) and (ii) are true
 - (d) Both (i) and (ii) are false
44. The intersection of three distinct planes in the three-dimensional space is
- (a) a point
 - (b) a straight line
 - (c) a point or a straight line
 - (d) neither a point nor a straight line
45. The sampling distribution refers to
- (a) the distribution of various sample sizes which might be used in a given study
 - (b) the distribution of different possible values of a statistic together with their respective probabilities of occurrence
 - (c) the distribution of the values of the items in the population
 - (d) the distribution of the values of the items actually selected in a given sample

Answer Question Nos. 46–48 on the basis of the following information :

A student has taken 5 courses—Philosophy, Biology, Economics, Mathematics and Literature. She studies for these courses according to the following pattern :

Every week the student studies for exactly three courses.

If she studies Biology in a week, then she also studies Philosophy that week.

If she studies Economics in a particular week, then she does not study it in the following week.

In any particular week she studies not more than one of the subjects studied in the preceding week.

46. Which of the following is a possible sequence of combinations for the student in the two successive weeks?
- (a) Week—1 : Philosophy, Biology and Economics
Week—2 : Biology, Mathematics and Literature
 - (b) Week—1 : Philosophy, Biology and Mathematics
Week—2 : Philosophy, Biology and Literature
 - (c) Week—1 : Philosophy, Mathematics and Literature
Week—2 : Philosophy, Biology and Economics
 - (d) Week—1 : Biology, Mathematics and Literature
Week—2 : Philosophy, Economics and Mathematics
47. If the student studies Philosophy, Biology and Economics in the first week, which of the following combinations must be studied in the third week?
- (a) Philosophy, Biology and Economics
 - (b) Philosophy, Biology and Mathematics
 - (c) Philosophy, Economics and Mathematics
 - (d) Economics, Mathematics and Literature
48. If the student studies Philosophy, Literature and Mathematics in the first week, which of the following combinations must be studied in the eleventh week?
- (a) Philosophy, Literature and Mathematics
 - (b) Philosophy, Biology and Mathematics
 - (c) Philosophy, Economics and Mathematics
 - (d) Economics, Mathematics and Literature

49. The rate of interest is
- (a) a flow variable
 - (b) a stock variable
 - (c) the ratio of a flow variable to a stock variable
 - (d) the ratio of a stock variable to a flow variable
50. The fiscal deficit is
- (a) a flow variable
 - (b) a stock variable
 - (c) the ratio of a flow variable to a stock variable
 - (d) the ratio of a stock variable to a flow variable
51. Suppose interest is compounded half-yearly at the rate of 10% per annum. If the present value of an asset, which returns a fixed sum of ₹ X after one year and nothing thereafter, is ₹ 50,000, then X is equal to
- (a) ₹ 54,750
 - (b) ₹ 55,000
 - (c) ₹ 55,125
 - (d) ₹ 55,250
52. Which of the following statements must be incorrect to describe a set of properties for the probability distribution of a random variable X ?
- (a) $E(X) = 0$
 - (b) Standard Deviation $(X) = -1$
 - (c) Variance $(X) = 1$
 - (d) The distribution of X is not symmetric about $E(X)$
53. Suppose two trials of a random experiment, in which a fair coin is tossed and a fair die is rolled simultaneously, are carried out under the same conditions. What is the probability that the outcome 'the coin shows a head and the die shows a number divisible by 3' is observed in at least one trial?
- (a) $9/144$
 - (b) $44/144$
 - (c) $60/144$
 - (d) $80/144$

Answer Question Nos. 54–57 on the basis of the following information :

Suppose, in equilibrium, aggregate income (in units of money per year) in an economy $Y = C + I$, where investment expenditure (in units of money per year) $I = 1000$ and aggregate consumption expenditure (in units of money per year) C satisfies the following conditions :

- (i) C is a function of current disposable income in the economy (Y_d).
- (ii) If $Y_d = 0$, then $C = 500$.
- (iii) Marginal propensity to save out of Y_d is constant in the economy and equal to 30%.

Suppose the government collects direct tax revenues equal to 15% of Y and makes direct transfer payments equal to 750 units of money per year.

54. What is the value of the investment multiplier in the economy?
- (a) Between 1.7 and 1.9
 - (b) Between 1.9 and 2.1
 - (c) Between 2.1 and 2.3
 - (d) Between 2.3 and 2.5
55. What is the equilibrium value of Y in the economy?
- (a) Between 3250 and 3750
 - (b) Between 3750 and 4250
 - (c) Between 4250 and 4750
 - (d) Between 4750 and 5250
56. If instead of 750 units of money the government makes annual transfer payments equal to 10% of Y , then the value of the investment multiplier will
- (a) decrease by less than unity
 - (b) decrease by more than unity
 - (c) increase by less than unity
 - (d) increase by more than unity
57. If instead of 750 units of money the government makes annual transfer payments equal to 10% of Y , then the equilibrium value of Y will
- (a) decrease by less than 1000
 - (b) decrease by more than 1000
 - (c) increase by less than 1000
 - (d) increase by more than 1000

58. Consider two economies (1 and 2) where in equilibrium, the level of aggregate income (Y) is the sum of aggregate investment expenditure (I) and aggregate consumption expenditure (C). I is determined autonomously of Y and its value in economy 1 is double that in economy 2. If the marginal propensity to save in economy 1 is half that in economy 2 for all values of Y , then the equilibrium value of $Y - C$ in economy 1 is
- (a) double that in economy 2
 - (b) half that in economy 2
 - (c) the same as that in economy 2
 - (d) None of the above
59. An indirect utility function
- (a) is defined over income and prices
 - (b) assumes profit maximization
 - (c) is homogenous of degree one
 - (d) satisfies all of the above
60. The GDP of a country is growing at 5%, its population growth is 2% and its income elasticity for food is 0.5. We can expect food demand to grow at
- (a) 2.0 percent
 - (b) 2.5 percent
 - (c) 3.5 percent
 - (d) 5.0 percent
61. If A is sufficient for B to occur and C is necessary for B to occur
- (a) from occurrence of B we can conclude that A has occurred
 - (b) from occurrence of B we can conclude that C has occurred
 - (c) from occurrence of C we can conclude that A has occurred
 - (d) from occurrence of C we can conclude that B has occurred
62. Which of the following institutions in India is not a constitutional body?
- (a) The National Finance Commission
 - (b) State Finance Commissions
 - (c) The National Planning Commission
 - (d) District Planning Committees

63. Which of the following conditions is not necessary for ordinary least squares to be the best unbiased linear estimator (BLUE)?
- (a) All errors are normally distributed
 - (b) All errors are independent and uncorrelated to each other
 - (c) All errors have expectation zero
 - (d) All errors have the same variance

Answer Question Nos. 64–66 on the basis of the following information :

“While capital is the most important condition or prerequisite of high efficiency production, one cannot explain differences in the wealth of nations in terms of differences in ‘capital endowment’ of different countries, in the same manner as one can explain differences in population density by reference to differing endowments of natural resources, such as climate, rainfall, geology, etc. For in contrast to natural resources which exist independently of human activities, ‘capital endowment’ is necessarily the result of such activities. It is impossible therefore to separate cause and effect; it is just as sensible—indeed more enlightening—to say that capital accumulation has resulted from industrial development than that it was the cause of such development. For taking manufacturing activities as a whole, the growth of output and the accumulation of capital are merely different aspects of a single process.”

(Nicholas Kaldor, *Capitalism and Industrial Development*, 1972)

64. According to Kaldor, differing endowments of natural resources
- (a) explain differences in capital accumulation
 - (b) result from industrial development
 - (c) can help to explain differences in population density
 - (d) can be the result of human activities
65. ‘Capital endowment’ cannot explain the differences in the wealth of nations, because
- (a) these are more determined by natural resource endowment
 - (b) capital is the most important condition or prerequisite of high efficiency production
 - (c) capital cannot be the cause of industrial development
 - (d) industrial development may change ‘capital endowment’
66. Kaldor argues that climate, rainfall, geology, etc.
- (a) have a strong relationship with patterns of industrial development
 - (b) are determinants of economic growth
 - (c) exist independently of human activities
 - (d) can explain the differences in the wealth of nations

Answer Question Nos. 67 and 68 on the basis of the following information :

According to the Constitution of India, "Where any law makes any provision for the acquisition by the State of any estate or where any land comprised therein is held by a person under his personal cultivation, it shall not be lawful for the State to acquire any portion of such land as is within the ceiling limit applicable to him under any law for the time being in force or any building or structure standing thereof, unless the law relating to the acquisition of such land, building or structure, provides for payment of compensation at a rate which shall not be less than the market value thereof." [Article 31A(e)]

67. On this basis, which of the following statements is correct?

- (a) The State must pay full market value for all land acquired from a cultivator
- (b) Only land without buildings and structures can be acquired by the State
- (c) Only a person cultivating the land personally is eligible for compensation
- (d) Land above designated ceiling limits can be acquired by the State without compensating for its market value

68. On this basis, which of the following statements is not correct?

- (a) Laws relating to land acquisition by the State must provide for some compensation
- (b) Landlords with tenant cultivators on the acquired land must share some of the compensation with their tenants
- (c) Acquisition laws apply to land and to built structures on land
- (d) Even without a law relating to land acquisition, States can acquire land

69. In 1990-91, the price index of agricultural commodities was 200 and that of manufactured products 150. In a year's time both the indices increased by 15 (i.e., the price index of agricultural commodities became 215 and that of manufactured products 165). Consequently, the terms of trade between agriculture and industry

- (a) moved in favour of agriculture
- (b) moved in favour of industry
- (c) remained unchanged
- (d) None of the above

70. Populations of two species A and B at time 0 are equal. If the instantaneous rates of growth of populations of species A and B are u and $u+1$ respectively, $u > 0$; then at time 1 the population of species B would be
- (a) twice the population of species A
 - (b) $\log 10$ times of the population of species A
 - (c) e^u times the population of species A
 - (d) e times the population of species A
71. Suppose the demand for good Z goes up when the price of good Y goes down. We can say that goods Z and Y are
- (a) complements
 - (b) perfect substitutes
 - (c) unrelated goods
 - (d) substitutes
72. If the quantity demanded of rice increases by 5% when the price of wheat increases by 20%, the cross-price elasticity of demand is
- (a) -4
 - (b) -0.25
 - (c) 0.25
 - (d) 4
73. Which of the following does monopolistic competition have in common with perfect competition?
- (a) A large number of firms and freedom of entry and exit
 - (b) A standardized product
 - (c) Product differentiation
 - (d) The ability to earn an economic profit in the long run

74. Which of the following does monopolistic competition have in common with monopoly?
- (a) A large number of firms
 - (b) A downward-sloping demand curve
 - (c) The ability to collude with respect to price
 - (d) None of the above
75. The market demand function for a commodity is given as $D(p) = 1/p$; where p is the price of the commodity. Which of the following statements about the market demand curve is correct?
- (a) The price elasticity of demand for this commodity is different at different points on the demand curve and it varies from 0 to 1
 - (b) The price elasticity of demand for this commodity is different at different points on the demand curve and it varies from 0 to ∞
 - (c) The price elasticity of demand for this commodity is equal to 1 at any point on the demand curve
 - (d) None of the above
76. Let a be strictly negative real number and let b be a strictly positive real number. Which of the following is true? [Note that $|x|$ stands for the absolute value of x]
- (a) $|a| < b$ if and only if $-b < a < b$
 - (b) $|a| < b$ if and only if $-b > a > b$
 - (c) $|a| < b$ if and only if $-b > a$
 - (d) None of the above
77. Let $|x|$ stands for the absolute value of x . Then the function $f(x) = |x|$ is
- (a) differentiable everywhere including the point '0'
 - (b) differentiable everywhere excluding the point '0'
 - (c) differentiable everywhere excluding the points '0', '1' and '-1'
 - (d) None of the above

78. If you integrate $1/x$ over the interval $[1, y]$, where $y > 1$, you get

- (a) $\log y$ (which is the natural logarithm of y)
- (b) $\log (y + 1)$ (which is the natural logarithm of $y + 1$)
- (c) e^y
- (d) None of the above

79. For events A and B

- (i) the probability of event A is p
- (ii) the probability of event B is q
- (iii) the probability of event AB is r

Which of the following is true?

- (a) Probability {either A or B or both} = $p + q$
- (b) Probability {either A or B but not both} = $p + q - r$
- (c) Probability {either A or B but not both} = $p + q - 2r$
- (d) None of the above

80. Which of the following sets is empty?

- (a) $\{x \text{ is a real number} \mid x = x\}$
- (b) $\{x \text{ is a real number} \mid x \neq x\}$
- (c) $\{x \text{ is a real number} \mid x = x^2\}$
- (d) $\{x \text{ is a real number} \mid x \neq x^2\}$

81. Let set A contains m elements and set B contains n elements. Then the number of distinct functions from set A to set B which can be constructed is

- (a) m^n
- (b) n^m
- (c) $m + n$
- (d) mn

- 82.** In an election, half the electors voted for candidate *A* and two-thirds voted for candidate *B*. 10 electors voted for both *A* and *B*. 6 electors voted for neither *A* nor *B*. How many electors were there?
- (a) 18
 - (b) 24
 - (c) 36
 - (d) None of the above
- 83.** A theorem states that 'if *P* then *Q*'. From empirical observations it is known that *P* is false. Therefore it can be inferred that
- (a) *Q* is false
 - (b) *Q* is true
 - (c) the theorem 'if *P* then *Q*' is false
 - (d) None of the above
- 84.** Following are given :
- (i) All *P* are *Q*.
 - (ii) No *Q* is *R*.
- From (i) and (ii) we can infer that
- (a) some *P* are *R*
 - (b) no *P* is *R*
 - (c) all *P* are *R*
 - (d) None of the above
- 85.** Following are given :
- (i) Some *P* are *Q*.
 - (ii) No *R* is *Q*.
- From (i) and (ii) we can infer that
- (a) some *P* are *R*
 - (b) no *P* is *R*
 - (c) all *P* are *R*
 - (d) None of the above

- 86.** A country that has a trade deficit experiences a nominal exchange rate depreciation. As a result
- (a) the trade deficit will necessarily decline
 - (b) the trade deficit will necessarily increase
 - (c) the exchange rate depreciation will cause domestic inflation; so there will be no impact on the trade deficit
 - (d) Nothing can be said about the trade deficit without more information
- 87.** Economic activities cover
- (a) only activities that result in products that are exchanged in markets
 - (b) only activities that people engage in for profit
 - (c) only activities that are or can potentially be delegated to someone else
 - (d) only activities that are entered into the national accounts
- 88.** In the WTO's Agreement on Agriculture, 'Blue Box' subsidies refer to
- (a) measures to subsidise agricultural exports
 - (b) measures to provide income support to farmers
 - (c) measures to incentivise farmers to make their cultivation more environment-friendly
 - (d) measures to protect certain crops
- 89.** A monopoly producing a chip at a marginal cost of ₹ 6 per unit faces a demand elasticity of -2.5 . Which price should it charge to optimize its profits?
- (a) ₹ 6 per unit
 - (b) ₹ 8 per unit
 - (c) ₹ 10 per unit
 - (d) ₹ 12 per unit

90. X_1, \dots, X_N are independent and identically distributed random variables. Assume that X_i is normally distributed with mean 1 and variance 1. Let a_1, \dots, a_N be real numbers. Construct the random variable Z as follows :

$$Z = \sum_{i=1}^N a_i \times X_i^2$$

Which of the following is true?

- (a) The expected value of Z is $\sum_{i=1}^N a_i$
- (b) The expected value of Z is $\sum_{i=1}^N a_i^2$
- (c) The expected value of Z is $2 \times \sum_{i=1}^N a_i$
- (d) None of the above

91. The value-added tax is

- (a) a direct tax
- (b) an indirect tax
- (c) a partly direct and partly indirect tax
- (d) a new type of tax, neither direct nor indirect

92. The current investment rate in India is

- (a) about 20 percent
- (b) about 30 percent
- (c) about 40 percent
- (d) about 50 percent

93. A village has 400 hectares of land of which 200 hectares is sown only once in a year, 75 hectares is sown with two crops a year, 50 hectares is sown with three crops a year and 75 hectares is left fallow. What is the gross cropped area of the village?
- (a) 200 hectares
 - (b) 300 hectares
 - (c) 400 hectares
 - (d) 500 hectares
94. The Right to Education Act, 2009 covers all children
- (a) up to 11 years of age
 - (b) up to 14 years of age
 - (c) in the age-group of 6 to 14 years of age
 - (d) in the age-group of 6 to 16 years of age

Answer Question Nos. 95–100 on the basis of the following information :

There are two experts, X_1 and X_2 , employed by the Planning Commission of Hubble Bubble to calculate the annual rate of growth of output in the country. Given that $Y(t)$ denotes output in year t and $Y(t - 1)$ denotes output in the previous year ($t - 1$), X_1 calculates the rate of growth in year t using the formula $[Y(t) - Y(t - 1)] / Y(t)$ and X_2 calculates it using the formula $[Y(t) - Y(t - 1)] / Y(t - 1)$.

95. Suppose Hubble Bubble's output in 2012 was greater than its output in 2011. Which expert calculated a higher rate of growth for 2012?
- (a) X_1
 - (b) X_2
 - (c) Both X_1 and X_2 calculated the same value for the rate of growth
 - (d) Cannot be answered on the basis of the information provided
96. Suppose Hubble Bubble's output in 2012 was less than its output in 2011. Which expert calculated a higher rate of growth for 2012?
- (a) X_1
 - (b) X_2
 - (c) Both X_1 and X_2 calculated the same value for the rate of growth
 - (d) Cannot be answered on the basis of the information provided

97. Suppose X_2 's calculations show that the rate of growth in 2012 was 5%. Which of the following numbers is the closest to X_1 's calculated value for the rate of growth in 2012?
- (a) 4.76
 - (b) 4.79
 - (c) 5.21
 - (d) 5.26
98. Suppose X_1 's calculations show that the rate of growth in 2012 was 5%. Which of the following numbers is the closest to X_2 's calculated value for the rate of growth in 2012?
- (a) 4.76
 - (b) 4.79
 - (c) 5.21
 - (d) 5.26
99. Suppose X_2 's calculations show that the rate of growth in 2012 was -5%. Which of the following numbers is the closest to X_1 's calculated value for the rate of growth in 2012?
- (a) -4.76
 - (b) -4.79
 - (c) -5.21
 - (d) -5.26
100. Suppose X_1 's calculations show that the rate of growth in 2012 was -5%. Which of the following numbers is the closest to X_2 's calculated value for the rate of growth in 2012?
- (a) -4.76
 - (b) -4.79
 - (c) -5.21
 - (d) -5.26

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ENTRANCE EXAMINATION, 2012

M.A. ECONOMICS

[Field of Study Code : ECOM (216)]

058

Time Allowed : 3 hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

Candidates must read carefully the following instructions before attempting the Question Paper :

- (i) Write your Name and Registration Number in the space provided for the purpose on the top of this Question Paper and in the Answer Sheet.
- (ii) **Please darken the appropriate Circle of Question Paper Series Code on the Answer Sheet.**
- (iii) All questions are compulsory.
- (iv) Answer all the 100 questions in the Answer Sheet provided for the purpose by darkening the correct choice, i.e., (a) or (b) or (c) or (d) with a BALLPOINT PEN only against the corresponding circle. Any overwriting or alteration will be treated as wrong answer.
- (v) Each correct answer carries 1 mark. **There will be negative marking and 1/4 mark will be deducted for each wrong answer.**
- (vi) Answer written by the candidates inside the Question Paper will not be evaluated.
- (vii) Pages at the end have been provided for Rough Work.
- (viii) Return the Question Paper and Answer Sheet to the Invigilator at the end of the Entrance Examination. **DO NOT FOLD THE ANSWER SHEET.**

INSTRUCTIONS FOR MARKING ANSWERS

1. Use only Blue/Black Ballpoint Pen (do not use pencil) to darken the appropriate Circle.
2. Please darken the whole Circle.
3. Darken ONLY ONE CIRCLE for each question as shown in example below :

Wrong ● (b) (c) ●	Wrong ⊗ (b) (c) ⊗	Wrong ⊗ (b) (c) ⊗	Wrong ● (b) (c) ●	Correct (a) (b) (c) ●
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4. Once marked, no change in the answer is allowed.
5. Please do not make any stray marks on the Answer Sheet.
6. Do rough work only on the pages provided for this purpose.
7. Mark your answer only in the appropriate space against the number corresponding to the question.
8. **Ensure that you have darkened the appropriate Circle of Question Paper Series Code on the Answer Sheet.**

1. If the population of a country increases by 20 percent in 10 years, the annual exponential growth rate of the population is

- (a) 2%
- (b) more than 2%
- (c) less than 2%
- (d) None of the above

2. In regression analysis, a standardized variable

- (a) has a mean of 0 and a standard deviation of 1
- (b) is always normally distributed
- (c) has a bell-shaped distribution
- (d) None of the above

3. Consider the following null and alternative hypotheses :

$$H_0 : \pi = 0.16$$

$$H_1 : \pi > 0.16$$

The above setup

- (a) indicates a one-tailed test with a rejection area in the right tail
- (b) indicates a one-tailed test with a rejection area in the left tail
- (c) indicates a two-tailed test with an acceptance region in the right tail
- (d) indicates a two-tailed test with a rejection area in the right tail

4. Suppose the penalty imposed for premature withdrawal of a time deposit from any bank in an economy increases from 1% to 2.5% of the amount of the deposit. Everything else remaining constant, what will happen to the transactions demand for money in the economy?

- (a) Remain unchanged
- (b) Increase
- (c) Decrease
- (d) Cannot be determined

1. If the population of a country increases by 20 percent in 10 years, the annual exponential growth rate of the population is
- (a) 2%
 - (b) more than 2%
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- (a) Remain unchanged
 - (b) Increase
 - (c) Decrease
 - (d) Cannot be determined

5. In which of the following cases would the purchase of rice be included in our calculation when we calculate the GDP of India from the expenditure side?
- (a) A resident Indian purchases rice to make a dosa which he sells to his neighbour. He then pockets the money received
 - (b) A resident Indian purchases rice to make a dosa which he sells to his neighbour. He donates the money received to a charity
 - (c) A foreign citizen visiting India purchases rice to make a dosa which he sells to another foreign citizen visiting India
 - (d) A non-resident Indian visiting India purchases rice, goes back to his country of residence, makes a dosa and then sells it to his neighbour
6. If three corners of a parallelogram are $(1, 1)$, $(4, 2)$ and $(1, 3)$, then the fourth corner is
- (a) $(4, 4)$
 - (b) $(4, 0)$
 - (c) $(-2, 2)$
 - (d) $(4, 4)$ or $(4, 0)$ or $(-2, 2)$

Question Nos. 7-10 are to be answered on the basis of the following information :

Consider a cube having $(0, 0, 0)$, $(1, 0, 0)$, $(0, 1, 0)$ and $(0, 0, 1)$ as four of its corners.

7. Which of the following is true?
- (a) The other corners are $(1, 1, 0)$, $(1, 0, 1)$, $(0, 1, 1)$ and $(1, 1, 1)$
 - (b) The other corners are $(-1, -1, 0)$, $(-1, 0, -1)$, $(0, -1, -1)$ and $(-1, -1, -1)$
 - (c) The other corners are $(\frac{1}{2}, \frac{1}{2}, \frac{1}{2})$ and $(1, 1, 1)$
 - (d) The other corners of the cube cannot be determined
8. Which of the following is true?
- (a) $(\frac{1}{4}, \frac{1}{4}, \frac{1}{4})$ is the centre of the given cube
 - (b) $(\frac{1}{8}, \frac{1}{8}, \frac{1}{8})$ is the centre of the given cube
 - (c) The centre of the cube cannot be determined
 - (d) None of the above

9. Which of the following is true?
- (a) The volume of the cube is 1
 - (b) The volume of the cube is 6
 - (c) The volume of the cube is 8
 - (d) None of the above
10. Which of the following is true?
- (a) The area of the cube is 1
 - (b) The area of the cube is 6
 - (c) The area of the cube is 8
 - (d) The area of the cube cannot be determined

Question Nos. 11-14 are to be answered on the basis of the following information :

A random variable Y has the following distribution :

Y	-1	0	1	2
$P(Y)$	$3C$	$2C$	0.4	0.1

11. The value of the constant C is
- (a) 0.10
 - (b) 0.15
 - (c) 0.20
 - (d) None of the above
12. The expected value of Y^2 is
- (a) 0.90
 - (b) 0.80
 - (c) 1.50
 - (d) 1.10
13. Consider the random variable $2 \times Y + r^2$, where r is a real number. The mean of this random variable is 0.7. Which of the following must be true?
- (a) $r = 0.10$
 - (b) $r = 0.05$
 - (c) $r^2 = 0.40$
 - (d) None of the above

- (c) 16.16
- (d) None of the above

15. Assume that country A is relatively abundant in labour and country B is relatively abundant in land. Note that wages are the returns to labour and rents are the returns to land. According to the factor price equalization theorem, once country A begins specializing according to comparative advantage and trading with country B
- (a) wages and rents should fall in country A
 - (b) wages and rents should rise in country A
 - (c) wages should rise and rents should fall in country A
 - (d) wages should fall and rents should rise in country A

Question Nos. 16–18 are to be answered on the basis of the following information :

The table below shows the domestic demand and supply conditions for computers in a small country, Norway, in the world computer market :

<i>Price (in \$)</i>	<i>Demand</i>	<i>Supply</i>
1000	3200	800
1500	2800	1200
2000	2400	1600
2500	2000	2000
3000	1600	2400
3500	1200	2800

16. In the absence of trade, Norway's equilibrium price and quantity equal
- (a) \$ 1500 and 2800 computers
 - (b) \$ 2000 and 1600 computers
 - (c) \$ 2500 and 2000 computers
 - (d) \$ 3500 and 2000 computers

9. Which of the following is true?
- (a) The volume of the cube is 1
 - (b) The volume of the cube is 6
 - (c) The volume of the cube is 8
 - (d) None of the above

10. Which of the following is true?
- (a) The area of the cube is 1
 - (b) The area of the cube is 6
 - (c) The area of the cube is 8
 - (d) The area of the cube cannot be determined

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- (a) 0.10
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 - (d) None of the above
12. The expected value of Y^2 is
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 - (c) 1.50
 - (d) 1.10
13. Consider the random variable $2 \times Y + r^2$, where r is a real number. The mean of this random variable is 0.7. Which of the following must be true?
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 - (b) $r = 0.05$
 - (c) $r^2 = 0.40$
 - (d) None of the above

- (c) 16-16
- (d) None of the above

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- (b) wages and rents should rise in country A
- (c) wages should rise and rents should fall in country A
- (d) wages should fall and rents should rise in country A

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2000	2400	1600
2500	2000	2000
3000	1600	2400
3500	1200	2800

16. In the absence of trade, Norway's equilibrium price and quantity equal
- (a) \$ 1500 and 2800 computers
 - (b) \$ 2000 and 1600 computers
 - (c) \$ 2500 and 2000 computers
 - (d) \$ 3500 and 2000 computers

17. With free trade, suppose the rest of the world can supply computers at a price of \$ 1500. Norway's imports will now equal _____. Compared to what occurred in the absence of trade, Norway's consumer surplus will _____ and producer surplus will _____.
- (a) 1600 computers, decrease, increase
 - (b) 1600 computers, increase, decrease
 - (c) 1200 computers, decrease, increase
 - (d) 1200 computers, increase, decrease
18. To reduce imports, suppose the Government of Norway imposes a quota equal to 800 computers. Compared to what occurred in the absence of trade, Norway's consumer surplus will _____ and producer surplus will _____.
- (a) increase, increase
 - (b) increase, decrease
 - (c) decrease, increase
 - (d) decrease, decrease
19. Let $f(x) = (\log(x))/x$, where $0 < x < 1$. Then for all x , such that $0 < x < 1$
- (a) $f'(x) < 0$
 - (b) $f'(x) > 0$
 - (c) $f'(x) > 0$, if $0 < x < 0.5$ and $f'(x) < 0$, if $0.5 \leq x < 1$
 - (d) Cannot say anything about the sign of $f'(x)$
20. Given two numbers, $a = (3\sqrt{7} + 4\sqrt{7})^2$ and $b = 343$, which of the following must be true?
- (a) $a > b$
 - (b) $b > a$
 - (c) $a = b/2$
 - (d) $a = b$
21. Let $S = 1 + 1/2^2 + 1/3^2 + 1/4^2 + 1/5^2 + \dots$. Which of the following is true?
- (a) $S = 6$
 - (b) $S = 8$
 - (c) The sum does not converge to any finite value
 - (d) None of the above

Question Nos. 22-26 are to be answered on the basis of the following information :

Consider a closed economy in which aggregate output in short-run equilibrium is equal to the level of effective demand. There are only two types of expenditure on goods and services—private consumption expenditure and expenditure by the government (G). Workers earn only wage income and non-workers earn all remaining income. Non-workers always spend a fixed amount on consumption. Suppose to produce every rupee of final output, 0.005 labour-day is required and the wage for a working day is Rs 150.

22. Suppose there is no taxation in the economy. If S denotes private savings and I denotes investment expenditure in the economy, which of the following is a condition for short-run equilibrium in the economy?
- (a) $S = G$
 - (b) $S = I$
 - (c) $S = 0$
 - (d) None of the above
23. Suppose workers consume their entire income and the only tax revenue comes from lump sum direct taxes imposed on non-workers. What is the value of the balanced budget multiplier in this economy?
- (a) 1
 - (b) 2.5
 - (c) 4
 - (d) None of the above
24. Suppose workers consume a fraction 0.8 of their income and the only tax revenue comes from lump sum direct taxes imposed on non-workers. What is the value of the balanced budget multiplier?
- (a) 1
 - (b) 2.5
 - (c) 4
 - (d) None of the above
25. Suppose workers consume their entire income and the lump sum direct taxes are imposed on workers rather than on non-workers. What is the value of the balanced budget multiplier?
- (a) 1
 - (b) 2.5
 - (c) 4
 - (d) None of the above

26. Suppose workers consume a fraction 0.8 of their disposable income and the lump sum direct taxes are imposed on workers rather than on non-workers. What is the value of the balanced budget multiplier?
- (a) 0.5
(b) 1
(c) 2
(d) 2.5
27. A_1, A_2 and A_3 are independent events. The probability of event A_i is $p_i, i = 1, 2, 3$. The probability of the event $\bigcup_{i=1}^3 A_i$ is equal to
- (a) $p_1 + p_2 + p_3$
(b) $1 - (1 - p_1) \times (1 - p_2) \times (1 - p_3)$
(c) $p_1 \times p_2 \times p_3$
(d) None of the above
28. A student must choose one of the subjects—Physics, Chemistry or Mathematics—for study. She is equally likely to choose Physics or Chemistry and twice as likely to choose Mathematics. The probability that the student chooses Mathematics is
- (a) $\frac{3}{4}$
(b) $\frac{1}{4}$
(c) $\frac{1}{2}$
(d) None of the above
29. Linda is 31, single, outspoken, and very bright. She studied Philosophy in college. As a student, she was deeply concerned with discrimination and other social issues, and participated in anti-nuclear demonstrations. Consider the following two situations:
- (i) Linda is a bank teller.
(ii) Linda is a bank teller and active in the feminist movement.
- Which of the following claims must be correct?
- (a) Situation (ii) is strictly more likely than situation (i)
(b) Situation (i) is strictly more likely than situation (ii)
(c) Situation (i) is at least as likely as situation (ii)
(d) None of the above

26. Suppose workers consume a fraction 0.8 of their disposable income and the lump sum direct taxes are imposed on workers rather than on non-workers. What is the value of the balanced budget multiplier?
- (a) 0.5 (b) 1
(c) 2 (d) 2.5
27. A_1, A_2 and A_3 are independent events. The probability of event A_i is $p_i; i = 1, 2, 3$. The probability of the event $\bigcup_{i=1}^3 A_i$ is equal to
- (a) $p_1 + p_2 + p_3$
(b) $1 - (1 - p_1) \times (1 - p_2) \times (1 - p_3)$
(c) $p_1 \times p_2 \times p_3$
(d) None of the above
28. A student must choose one of the subjects—Physics, Chemistry or Mathematics—for study. She is equally likely to choose Physics or Chemistry and twice as likely to choose Mathematics. The probability that the student chooses Mathematics is
- (a) $\frac{1}{3}$
(b) $\frac{1}{4}$
(c) $\frac{1}{2}$
(d) None of the above
29. Linda is 31, single, outspoken, and very bright. She studied Philosophy in college. As a student, she was deeply concerned with discrimination and other social issues, and participated in anti-nuclear demonstrations. Consider the following two situations :
- (i) Linda is a bank teller.
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- Which of the following claims must be correct?
- (a) Situation (ii) is strictly more likely than situation (i)
(b) Situation (i) is strictly more likely than situation (ii)
(c) Situation (i) is at least as likely as situation (ii)
(d) None of the above

30. x and y are real numbers such that $x < y$. Which of the following claims must be correct?
- (a) $x^2 < y^2$
 - (b) $y^2 < x^2$
 - (c) $x < x^2$
 - (d) None of the above
31. 0.036×0.02 is equal to
- (a) 0.0072
 - (b) 72×10^{-5}
 - (c) 0.000072
 - (d) None of the above

Question Nos. 32-36 are to be answered on the basis of the following information :

The names of 7 students when ranked in ascending order of their weights are A, B, C, D, E, F and G . A 's weight is 45 kg and G 's weight is 75 kg.

32. If no pair of students has the same weight, then the median weight of the group is
- (a) always equal to C 's weight
 - (b) the average of C 's weight and E 's weight
 - (c) C 's weight or E 's weight
 - (d) None of the above
33. If three students among B, C, D, E and F have the same weight and the remaining two have different weights, then the median weight of the group of 7 students is
- (a) always equal to C 's weight
 - (b) the average of C 's weight and E 's weight
 - (c) C 's weight or E 's weight
 - (d) None of the above
34. Suppose the name of F is deleted from the list. Then, if the difference in weights between any two consecutively ranked students on the list is a constant positive number, the median weight is equal to
- (a) B 's weight
 - (b) the average of B 's weight and E 's weight
 - (c) B 's weight or E 's weight
 - (d) None of the above

35. Suppose the name of F is deleted from the list and the difference in weights between any two consecutively ranked students on the list is a constant positive number. Calculate the arithmetic mean of the absolute deviations of the weights of the six students from the arithmetic mean of their weights. How many students in the list have a weight which differs from the median weight by more than this amount?
- (a) 1
 - (b) 2
 - (c) 3
 - (d) 4
36. Suppose the name of F is deleted from the list and the difference in weights between any two consecutively ranked students on the list is a constant positive number. The ratio between the standard deviation of the weights of the six students and the mean absolute deviation of their weights is
- (a) equal to unity
 - (b) less than unity
 - (c) greater than unity
 - (d) indeterminate
37. The probability of drawing two aces from a deck of 52 cards is
- (a) greater with replacement than without replacement
 - (b) the same with replacement as without replacement
 - (c) less with replacement than without replacement
 - (d) None of the above
38. The probability of drawing two spades from a deck of 52 cards without replacement is
- (a) greater than $1/16$
 - (b) equal to $1/16$
 - (c) less than $1/16$
 - (d) None of the above

39. X is a positive integer satisfying the following conditions :

- (i) $50 \leq X \leq 79$
- (ii) If X is a multiple of 3, then $50 \leq X \leq 59$
- (iii) If X is not a multiple of 4, then $60 \leq X \leq 69$
- (iv) If X is not a multiple of 6, then $70 \leq X \leq 79$

Therefore, we can infer that

- (a) $X = 54$
- (b) $X = 65$
- (c) $X = 76$
- (d) None of the above

40. Three trucks A , B and C are used for transporting wheat and rice. The following information is given :

- (i) If A carried wheat, then B carried rice.
- (ii) If A carried rice, then C carried wheat.
- (iii) If B carried wheat, then C carried rice.

Which truck always carried the same thing?

- (a) A
- (b) B
- (c) C
- (d) None of the above

41. Only one of the following three statements regarding the number of balls in an urn is true :

- (i) There are at least 100 balls in the urn.
- (ii) There are less than 100 balls in the urn.
- (iii) There is at least one ball in the urn.

How many balls are there in the urn?

- (a) 1
- (b) 100
- (c) 101
- (d) 0

Question Nos. **42 and 43** are to be answered on the basis of the following information :

- (i) Four students, named *P*, *Q*, *R* and *S* all opted for different subjects—Economics, History, Physics and Chemistry.
- (ii) *Q* opted neither for Physics nor for History.
- (iii) *S* opted neither for Physics nor for Chemistry.
- (iv) If *Q* did not opt for Chemistry, then *R* did not opt for Physics.
- (v) *P* opted neither for Physics nor for History.

42. *Q* opted for

- (a) Physics
- (b) Chemistry
- (c) Economics
- (d) History

43. Economics was opted by

- (a) *P*
- (b) *Q*
- (c) *R*
- (d) *S*

Question Nos. **44 and 45** are to be answered on the basis of the following information :

Three sportspersons *A*, *B* and *C* each made two statements given below :

A's statements :

- (i) I do not belong to the hockey team.
- (ii) Mr. *D* is on the soccer team.

B's statements :

- (i) I do not belong to the soccer team.
- (ii) Mr. *D* is on the cricket team.

C's statements :

- (i) I do not belong to the cricket team.
- (ii) Mr. *D* is on the hockey team.

Both statements made by the person who belongs to the hockey team are true; both statements made by the person who belongs to the soccer team are false; and the person who belongs to the cricket team made one true statement and one false statement.

44. Mr. *D* is on the

- (a) cricket team
- (b) hockey team
- (c) soccer team
- (d) None of the above

45. The person belonging to the cricket team is
- (a) A
 - (b) B
 - (c) C
 - (d) None of the above
46. Compared to a single-price monopoly, a perfectly competitive industry produces
- (a) less output and has a lower price
 - (b) less output and has a higher price
 - (c) more output and has a lower price
 - (d) None of the above
47. A 95% confidence interval for a population mean will be — a 99% confidence interval for the same population mean. (Both calculations are based on the same set of data.)
- (a) longer than
 - (b) shorter than
 - (c) the same length as
 - (d) None of the above
48. The equilibrium rent for four-bedroom apartments is Rs 1,500 per month. If the city government imposes a price ceiling of Rs 1,600 per month on rents, which of the following will happen?
- (a) There will be excess demand for four-bedroom apartments
 - (b) There will be excess supply of four-bedroom apartments
 - (c) The government will earn Rs 100 per month from each four-bedroom apartment that is rented
 - (d) None of the above
49. Continue the following number series with the group of numbers below which best continues the series :
- 1 10 3 9 5 8 7 7 9 6
- (a) 11 5
 - (b) 10 5
 - (c) 10 4
 - (d) 11 6

50. If two typists can type 2 pages in 2 minutes, how many typists will it take to type 18 pages in 6 minutes?
- (a) 4 (b) 6
(c) 12 (d) 36
51. If you count from 1 to 100, how many 7s will you pass on the way?
- (a) 11 (b) 19
(c) 20 (d) 21
52. Four years ago, Arka was twice as old as Saina. Four years on from now, Saina will be $\frac{3}{4}$ of Arka's age. How old is Arka now?
- (a) 10 years (b) 12 years
(c) 8 years (d) 16 years
53. Which number comes next in the following series of numbers?
2 3 5 7 11 13
- (a) 14 (b) 15
(c) 16 (d) 17
54. Two men, starting at the same point, walk in opposite directions for 4 meters, turn left and walk another 3 meters. What is the distance between them?
- (a) 2 meters (b) 6 meters
(c) 10 meters (d) 14 meters
55. In a lake, there is a patch of lily pads. Everyday, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half the lake?
- (a) 24 days
(b) 12 days
(c) Cannot be determined from the statement of the problem
(d) None of the above

Question Nos. 56-58 are to be answered on the basis of the following information :

In a two-good world, there is an individual with income $m = 3$ and utility function is given by $u(x, y) = x^{0.5}y^{0.5}$. The price of good x is 1 per unit and the price of good y is also 1 per unit.

56. If the individual can consume any non-negative amount of goods x and y , then the optimum consumption bundle is
- (a) $x = 1, y = 1$
 - (b) $x = 1.5, y = 1.5$
 - (c) $x = 2.5, y = 0.5$
 - (d) $x = 0, y = 3$
57. If the individual can consume either zero unit of good x or at most one unit of x and any non-negative amount of good y , then the optimum consumption bundle is
- (a) $x = 1, y = 2$
 - (b) $x = 1, y = 3$
 - (c) $x = 0, y = 3$
 - (d) $x = 3, y = 0$
58. If both goods x and y can be consumed only in integer amounts (i.e., zero unit, one unit, two units, etc.), then the optimum consumption bundle is
- (a) $x = 3, y = 1$
 - (b) $x = 1, y = 3$
 - (c) $x = 3, y = 0$
 - (d) either $x = 2, y = 1$ or $x = 1, y = 2$

Question Nos. 59-61 are to be answered on the basis of the following information :

A firm produces a certain good and has two plants. To produce y_1 units of the good in plant 1, the total cost for the firm is $c_1(y_1) = y_1 \times y_1$. To produce y_2 units of the good in plant 2, the total cost for the firm is $c_2(y_2) = y_2 \times y_2$.

59. Suppose the firm produces output y at minimum cost. Which of the following is true?
- (a) All of the output is produced in one of the two plants
 - (b) Output $y/2$ is produced in plant 1 and output $y/2$ is produced in plant 2
 - (c) All divisions of output y between the two plants result in the same cost for the firm
 - (d) None of the above

60. Each unit of good produced by the firm is sold at price equal to 3. The profit-maximizing output of the firm is
- (a) 3
 - (b) 0
 - (c) 6
 - (d) The profit maximization problem does not have a solution
61. Each unit of good produced by the firm is sold at price equal to 3. The profit level of the profit-maximizing firm is
- (a) 9
 - (b) 0
 - (c) The profit maximization problem does not have a solution
 - (d) None of the above
62. Which of the following represents the same preferences as
- $$U(x_1, x_2) = \min\{x_1, x_2\} + \max\{x_1, x_2\}$$
- where $x_1, x_2 \geq 0$?
- (a) $x_1 + x_2$
 - (b) $x_1 \times x_2$
 - (c) $\max\{x_1, x_2\}$
 - (d) None of the above
63. Let f be a twice differentiable real-valued function defined on the set of all real numbers greater than or equal to 0 and less than or equal to 1. Suppose f attains the maximum value in its domain at x^* . Which of the following must be true?
- (a) $f'(x^*) = 0$
 - (b) $f''(x^*) < 0$
 - (c) $x^* = 0$ or $x^* = 1$ or $f'(x^*) = 0$
 - (d) None of the above

Question Nos. **64–66** are to be answered on the basis of the following information :

A relation f from set X to set Z is a function if and only if for every element x in X there is a unique element z in Z such that x and z are associated through f . X is called the domain of f and Z the codomain of f . The range of f is the set of all elements in the codomain which are associated with at least one element in the domain.

f is a surjective function if and only if every element in the codomain has an association in the domain. f is an injective function if and only if no two distinct elements in the domain are associated with the same element in the codomain.

Consider the following statements :

- (i) There exists an element x in the domain of f such that no element in the codomain is associated with it.
- (ii) There exists an element x in the domain of f and two distinct elements z and w in the codomain of f such that both z and w are associated with x .

64. Which of the following is true?

- (a) To prove that f is not a function, it is necessary to demonstrate (i)
- (b) To prove that f is not a function, it is necessary to demonstrate (ii)
- (c) To prove that f is not a function, it is necessary to demonstrate (i) or (ii)
- (d) None of the above

65. Which of the following is true?

- (a) Demonstration of (i) is sufficient to prove that f is not a function but demonstration of (ii) is not sufficient to prove that f is not a function
- (b) Demonstration of (ii) is sufficient to prove that f is not a function but demonstration of (i) is not sufficient to prove that f is not a function
- (c) Demonstration of (i) and (ii) is sufficient to prove that f is not a function
- (d) None of the above

66. Which of the following is true?

- (a) The range of a surjective function is always equal to its codomain
- (b) The range of a surjective function is never equal to its codomain
- (c) The range of a surjective function is equal to its codomain only if it is injective also
- (d) One of the conditions under which the range of a surjective function is equal to its codomain is that the function is injective also

Question Nos. **67-69** are to be answered on the basis of the following information :

A firm uses labour to produce a certain good. If x units of labour are used by the firm, the output of the good equals $f(x) = 20x - x^2$. Each unit of the good sells at a price of 1. Let w denote the price of each unit of labour. We must have $x \geq 0$. Assume that the firm hires labour to maximize profits.

- 67.** What is the minimum w for which it is optimal for the firm to hire zero unit of labour?
- (a) 0
 - (b) 10
 - (c) 15
 - (d) None of the above
- 68.** For what value of w is it optimal for the firm to hire 10 units of labour?
- (a) 0
 - (b) 20
 - (c) 10
 - (d) None of the above
- 69.** Assume that $w = 16$. Then the profits of the firm equal
- (a) 2
 - (b) 36
 - (c) 4
 - (d) None of the above
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Question Nos. **70-75** are to be answered on the basis of the following information :

Ms. Chi can repay a loan taken from Mr. Tao either by giving him u kg of gold today or by giving him v kg of gold after two years. The price of gold today is Rs x per gram. Ms. Chi is certain that after two years the price of gold will be Rs y per gram. If Ms. Chi chooses to repay the loan after two years, she will open a fixed deposit account at her bank today with a maturity period of two years and use the proceeds at maturity to purchase the necessary gold. Interest on such a deposit is compounded annually and is paid on the date of maturity. The rate of interest for a two-year fixed deposit is r percent per annum. Every year the interest paid into Ms. Chi's fixed deposit account will be taxed at the rate of t percent. Ms. Chi will decide when to repay the loan on the basis of which option will cost her the least amount of money today.

- 70.** If $u = v = 0.16$, $x = 2000$, $y = 2500$, $r = 12.5$, $t = 0$, when will Ms. Chi repay the loan?
- (a) Today
 - (b) After two years
 - (c) She will be indifferent between (a) and (b)
 - (d) More information is necessary to provide the answer

71. If $u = v$, $x = 2000$, $y = 2500$, $r = 12$, $t = 0$, when will Ms. Chi repay the loan?
- (a) Today
 - (b) After two years
 - (c) She will be indifferent between (a) and (b)
 - (d) More information is necessary to provide the answer
72. If $u = v$, $x = 2000$, $y = 2500$, $r = 12.5$, $t = 0.04$, when will Ms. Chi repay the loan?
- (a) Today
 - (b) After two years
 - (c) She will be indifferent between (a) and (b)
 - (d) More information is necessary to provide the answer
73. If $u = 0.16$, $v = 0.165$, $x = 2000$, $y = 2500$, $r = 12.5$, $t = 0$, when will Ms. Chi repay the loan?
- (a) Today
 - (b) After two years
 - (c) She will be indifferent between (a) and (b)
 - (d) More information is necessary to provide the answer
74. If $u = 0.16$, $v = 0.165$, $x = 2000$, $y = 2500$, $r = 12$, $t = 0$, when will Ms. Chi repay the loan?
- (a) Today
 - (b) After two years
 - (c) She will be indifferent between (a) and (b)
 - (d) More information is necessary to provide the answer
75. If $u = 0.16$, $v = 0.165$, $x = 2000$, $y = 2500$, $r = 12$, $t = 0.04$, when will Ms. Chi repay the loan?
- (a) Today
 - (b) After two years
 - (c) She will be indifferent between (a) and (b)
 - (d) More information is necessary to provide the answer

Question Nos. 76-79 are to be answered on the basis of the following information :
Consider the following tabulated data for an economy and answer the questions that follow :

Year	GDP at current prices	GDP at constant prices
1975	21	17
1980	26	21
1985	32	26
1990	39	32
1995	47	39

76. In which period did the economy have the highest rate of growth of real GDP?
- (a) 1975-80
(b) 1980-85
(c) 1985-90
(d) 1990-95
77. In which period did the economy have the lowest rate of growth of real GDP?
- (a) 1975-80
(b) 1980-85
(c) 1985-90
(d) 1990-95
78. If the GDP deflator is taken as the price index for the economy, in how many of the periods 1975-80, 1980-85, 1985-90 and 1990-95 did the economy experience deflation?
- (a) 1 (b) 2
(c) 3 (d) 4
79. If the GDP deflator is taken as the price index for the economy, in how many of the periods 1975-80, 1980-85, 1985-90 and 1990-95 did the economy experience inflation?
- (a) 1 (b) 2
(c) 3 (d) 4

80. In a two-good world, a consumer's preferences over commodities 1 and 2 can be represented by the utility function $U(x_1, x_2) = v(x_1) + x_2$, where $x_1, x_2 \geq 0$. The consumer's income is known to be very high. Then, the demand for good 1 displays which of the following?
- (a) The substitution effect is negative and the income effect is positive
 - (b) The substitution effect is positive and the income effect is negative
 - (c) The substitution effect is zero and the income effect is positive
 - (d) The substitution effect is negative and there are no income effects
81. In a two-good world, suppose that the price of one good decreases. Which of the following holds true?
- (a) The Slutsky equation says that the total change in demand is exactly equal to the sum of the substitution effect and the income effect
 - (b) The Slutsky equation says that the total change in demand is less than the sum of the substitution effect and the income effect
 - (c) The Slutsky equation says that the total change in demand is more than the sum of the substitution effect and the income effect
 - (d) The Slutsky equation does not deal with income effects at all

Question Nos. **82-87** are to be answered on the basis of the following information :

Suppose a consumer's preferences over commodities 1 and 2 can be represented by the utility function $U(x_1, x_2) = \min\{x_1, x_2\}$, where $x_1, x_2 \geq 0$. The prices of the two commodities are 1 and 2 respectively and the consumer's income is 150.

82. The utility function of the consumer is
- (a) continuous at all points in the domain but not differentiable at all points in the domain
 - (b) not continuous at all points in the domain
 - (c) differentiable at all points in the domain
 - (d) None of the above
83. Which of the following is true?
- (a) At the optimum, the consumer should consume 150 units of commodity 1 and none of commodity 2
 - (b) At the optimum, the consumer should consume 75 units of commodity 2 and none of commodity 1
 - (c) At the optimum, the consumer should consume 50 units of commodity 1 and 50 units of commodity 2
 - (d) At the optimum, the consumer should spend equal amounts on the two commodities

84. If the income of the consumer increases by 1 unit, then.
- (a) the optimum consumption of commodity 1 increases by $\frac{1}{3}$ and the optimum consumption of commodity 2 increases by $\frac{1}{3}$
 - (b) the optimum consumption of commodity 1 increases by $\frac{1}{3}$ and the optimum consumption of commodity 2 increases by $\frac{2}{3}$
 - (c) the optimum consumption of commodity 1 increases by $\frac{1}{2}$ and the optimum consumption of commodity 2 increases by $\frac{1}{2}$
 - (d) None of the above
85. Suppose the price of commodity 2 reduces to 1 while the price of the other commodity and the consumer's income remain unchanged. The substitution effect according to Slutsky of this price change on the optimal amount of commodity 1 is
- (a) -1
 - (b) 25
 - (c) -25
 - (d) 0
86. Suppose the price of commodity 2 reduces to 1 while the price of the other commodity and the consumer's income remain unchanged. The income effect according to Slutsky of this price change on the optimal amount of commodity 1 is
- (a) 0
 - (b) 25
 - (c) -25
 - (d) -1
87. The equation of the income expansion path for the consumer is
- (a) $x_1 + 2x_2 = 150$
 - (b) $x_1 = 2x_2$
 - (c) $x_1 = x_2$
 - (d) None of the above

Question Nos. 88–92 are to be answered on the basis of the following information :

In a village, there is a field. If n cows simultaneously graze on this field, the value of milk produced by each cow is $v(n)$:

$v(1)$	$v(2)$	$v(3)$	$v(4)$	$v(5)$	$v(6)$	$v(7)$
22	18	15	12	10	9	8

Assume that the market price of a cow is Rs 11.

88. Suppose all villagers are given free access to the field. This means that any villager can buy as many cows as she wants, graze her cows on the field, and sell the milk obtained from her cows. In equilibrium, the total number of cows bought by villagers and grazed on the field equals
- (a) 4
(b) 5
(c) 7
(d) None of the above
89. Define the aggregate income of the village as follows :
Total value of milk produced by cows grazed on the field – Total cost of buying the cows.
How many cows must graze the field for the village's aggregate income to be maximized?
- (a) 1
(b) 2
(c) 3
(d) None of the above
90. If villagers are given free access to the field, the aggregate income of the village, in equilibrium, equals
- (a) 0
(b) 48
(c) 4
(d) None of the above
91. Assume that the villagers implement the following rule :
Each time a person buys a cow, she must pay Rs t to the village council. Thus, a person incurs a cost of Rs $11 + t$ for each cow that she buys.
For which of the following values of t will the equilibrium number of cows bought and grazed on the field equal the number that maximizes the village's aggregate income?
- (a) 11
(b) 6
(c) 0
(d) None of the above

92. Suppose t is set to 10. The revenue earned by the village council equals
- (a) Rs 10 (b) Rs 20
(c) Rs 30 (d) Rs 0
93. The function $f(x)$ approaches infinity as x approaches infinity and the limit of the derivative of the function $f(x)$ is 0 as x approaches infinity. What is the limit of $f(x)/x$ as x approaches infinity?
- (a) Infinity
(b) 0
(c) 1
(d) Cannot be determined
94. On which of the following intervals is the function $x/(x^2 - 1)$ continuous?
- (a) $(-1, \infty)$
(b) $(-\infty, 1)$
(c) $[-1, 1]$
(d) None of the above
95. What is the value of the derivative of the function $[(2x + 1)/(2x - 1)]^2$ at $x = 1.5$?
- (a) -4
(b) -2
(c) 2
(d) None of the above
96. Suppose $f(x) = a_1x + a_2 + (a_3/x)$, where a_1 , a_2 and a_3 are positive constants and x is assumed to take only positive values. Which of the following statements is true?
- (a) $f(x)$ has a minimum value but no maximum value
(b) $f(x)$ has a maximum value but no minimum value
(c) $f(x)$ has neither a minimum value nor a maximum value
(d) $f(x)$ has both a minimum value and a maximum value

97. If $z = e^{f(x,y)}$, where $f(x,y) = x^2 + y^2$, what is the elasticity of z with respect to x at $(x,y) = (1,2)$?
- (a) 1
 - (b) 2
 - (c) 4
 - (d) None of the above

Question Nos. 98-100 are to be answered on the basis of the following paragraph from the Economic Survey, 2010 :

India is a country which will be severely impacted by climate change. This puts additional hurdles in its developmental path in addition to the challenges of poverty eradication and growing population. The projected impacts of climate change cut across various sectors, natural system such as coastal areas, water resources, forests, agriculture and health. With a large agrarian population, India is vulnerable to changes in weather parameters. Further, rainfall variability and melting of glaciers will impact replenishment of rivers, thereby affecting availability of water in river basins and watersheds. In India, most of the rivers flowing in the northern regions are dependent on snow and glacial melt; thus climate change threatens the perennial nature of these rivers. This has huge implications for agriculture and allied activities and resultant livelihoods. This is a serious concern for an economy that is tied to its natural resources base along its developmental path.

98. The primary issue dealt with in this paragraph is
- (a) population growth
 - (b) climate change
 - (c) agriculture
 - (d) glaciers
99. It is argued in the paragraph that climate change will by itself
- (a) increase poverty
 - (b) make no difference to poverty in India
 - (c) put hurdles in the way of poverty eradication
 - (d) reduce inequalities in society
100. It is argued in the paragraph that climate change is a result of
- (a) large agrarian population
 - (b) India's long coastline
 - (c) lots of glaciers in the mountains
 - (d) None of the above

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ENTRANCE EXAMINATION, 2011
M.A. ECONOMICS
[Field of Study Code : ECOM (216)]

Time Allowed : 3 hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

Candidates must read carefully the following instructions before attempting the Question Paper :

- (i) Write your Name and Registration Number in the space provided for the purpose on the top of this Question Paper and in the Answer Sheet.
- (ii) **Please darken the appropriate Circle of Question Paper Series Code on the Answer Sheet.**
- (iii) All questions are compulsory.
- (iv) Answer all the 100 questions in the Answer Sheet provided for the purpose by darkening the correct choice, i.e., (a) or (b) or (c) or (d) with a BALLPOINT PEN only against the corresponding circle. Any overwriting or alteration will be treated as wrong answer.
- (v) Each correct answer carries 1 mark. **There will be negative marking and 1/4 mark will be deducted for each wrong answer.**
- (vi) Answer written by the candidates inside the Question Paper will not be evaluated.
- (vii) Pages at the end have been provided for Rough Work.
- (viii) Return the Question Paper and Answer Sheet to the Invigilator at the end of the Entrance Examination.
DO NOT FOLD THE ANSWER SHEET.

INSTRUCTIONS FOR MARKING ANSWERS

1. Use only Blue/Black Ballpoint Pen (do not use pencil) to darken the appropriate Circle.
2. Please darken the whole Circle.
3. Darken ONLY ONE CIRCLE for each question as shown in example below :

Wrong	Wrong	Wrong	Wrong	Correct
● (b) (c) ●	● (b) (c) (d) ●	● (b) (c) ●	● (b) (c) ●	● (a) (b) (c) ●

4. Once marked, no change in the answer is allowed.
5. Please do not make any stray marks on the Answer Sheet.
6. Do rough work only on the pages provided for this purpose.
7. Mark your answer only in the appropriate space against the number corresponding to the question.
8. **Ensure that you have darkened the appropriate Circle of Question Paper Series Code on the Answer Sheet.**

1. Suppose two fair, six-sided, dice are rolled. The probability of obtaining a value from the first dice that is at least two greater than the value from the second dice is
 - (a) $\frac{1}{6}$
 - (b) $\frac{9}{12}$
 - (c) $\frac{5}{18}$
 - (d) $\frac{1}{18}$

2. If the radius of a circle is increased by 20%, then the area is increased by
 - (a) 44%
 - (b) 120%
 - (c) 144%
 - (d) 40%

3. Let x , y and z be distinct integers. x and y are odd and positive, and z is even and positive. Which one of the following statements cannot be true?
 - (a) $(x-z)^2y$ is even
 - (b) $(x-z)y^2$ is odd
 - (c) $(x-z)y$ is odd
 - (d) $(x-y)^2z$ is even

4. A line that is 13 units long has $(4, 1)$ as one of the endpoints. Which of the following could be the other endpoint?
 - (a) $(-1, 13)$
 - (b) $(9, 14)$
 - (c) $(3, 7)$
 - (d) $(5, 12)$

5. If p and q are the roots of the equation $x^2 - bx + c = 0$, then what is the equation if the roots are $(pq + p + q)$ and $(pq - p - q)$?
- (a) $x^2 - 2cx + (c^2 - b^2) = 0$
 - (b) $x^2 - 2bx + (c^2 + b^2) = 0$
 - (c) $bcx^2 - 2(b + c)x + c^2 = 0$
 - (d) $x^2 + 2bx - (c^2 - b^2) = 0$
6. The domain of the function $f(x) = \frac{5}{\sqrt{x+7}}$ is
- (a) $(-7, \infty)$
 - (b) $[-7, \infty)$
 - (c) $(-\infty, \infty)$
 - (d) $(-\infty, -7) \cup (-7, \infty)$
7. Suppose we know that $|a| < 3$. Which of the following conditions is enough to imply that $|b| < 5$?
- (a) $|a + b| < 8$
 - (b) $2 < |a - b| < 8$
 - (c) $|a - b| \leq 2$
 - (d) $3 < |a - b| < 5$
8. A population consists of the following seven numbers :
2003; 1999; 2001; 1997; 2000; 2005; 1995
The variance of the population is
- (a) 11.6
 - (b) 10
 - (c) 2010
 - (d) None of the above
9. Suppose a person's utility function is given by $u(x, y)$. If good x and good y are perfect substitutes, then the indifference curves are
- (a) straight lines
 - (b) L-shaped
 - (c) U-shaped
 - (d) None of the above

10. If $f(x) = \frac{1}{x^2}$ is integrated over the interval $[1, 2]$, then one gets
- (a) 0
 - (b) $\log 2$
 - (c) $\frac{1}{2}$
 - (d) 1
11. Consider an economy wherein equilibrium level of aggregate income (Y) is the sum of aggregate investment expenditure (I) and aggregate consumption expenditure (C). For values of $Y \leq 1500$, $C = 200 + 0.6Y$ and any amount of aggregate income in excess of 1500 currency units is entirely saved in the economy. If the full employment level of $Y = 1750$, the minimum value of I necessary to ensure full employment in the economy is
- (a) 500
 - (b) 550
 - (c) 600
 - (d) None of the above

Question Nos. 12–15 are to be answered on the basis of the following information :

Consider an economy in which only three goods X , Y and Z are produced. X and Y are consumption goods and the output of Z in a year is used up in production of X and Y in that year. The following table gives the unit prices (p_X , p_Y and p_Z rupees respectively) and the number of units produced (q_X , q_Y and q_Z respectively) of each of the goods for three years I, II and III :

Year	p_X	q_X	p_Y	q_Y	p_Z	q_Z
I	1	2	2	5	1	2
II	1.5	3	2	6	1.5	4
III	1.5	6	3	6	2	5

12. What is the GDP (in rupees) at current prices in year II?
- (a) 10.5
 - (b) 16.5
 - (c) 22.5
 - (d) 28.5

13. If year I is the base year, what is the GDP (in rupees) at constant prices in year III?
- (a) 13
 - (b) 14
 - (c) 17
 - (d) 18
14. If year I is the base year, what is the value of the GDP deflator in year III?
- (a) 100
 - (b) 130.77 (approx.)
 - (c) 141.67 (approx.)
 - (d) 150
15. What is the rate of growth of real GDP (base year I) in year III?
- (a) 10%
 - (b) 13.67% (approx.)
 - (c) 18.18% (approx.)
 - (d) 20%

Question Nos. 16-22 are to be answered on the basis of the following information :

Let Y : aggregate real output per year, P : the price level, C : money value of aggregate consumption expenditure per year, I : money value of aggregate investment expenditure per year, L : aggregate employment (in labour hours per year), L^* : total labour supply (in labour hours per year) and w : hourly money wage rate. Let W denote the money value of aggregate wage income per year and R the money value of aggregate non-wage income per year. Consider an economy in which labour is homogeneous, the aggregate productivity of labour (Y/L) is a constant a and the price level (when output is below its full employment level) is a factor m times the wage cost per unit of aggregate output. The price at full employment is always greater than or equal to that at below full employment. In equilibrium, $PY = C + I$.

16. If $I = 4000$, $C = 1000 + 0.8W + 0.6R$, $w = 10$, $m = \frac{4}{3}$, $a = 16$, $L^* = 2000$, what is the full employment level of output in the economy?
- (a) 125
 - (b) 625
 - (c) 24000
 - (d) None of the above

17. If $C = 1000 + 0.8W + 0.6R$, $w = 10$, $m = \frac{4}{3}$, $a = 16$, $L^* = 2000$, and output is below its full employment level, what is the increase in nominal income per unit increase in investment expenditure in the economy?
- (a) 2
 - (b) 4
 - (c) 8
 - (d) 16
18. If $I = 4000$, $C = 1000 + 0.8W + 0.6R$, $w = 10$, $m = \frac{4}{3}$, $a = 16$, $L^* = 2000$, what is the price level in the economy?
- (a) 0.83 (approx.)
 - (b) 0.93 (approx.)
 - (c) 1.07 (approx.)
 - (d) 1.16 (approx.)
19. If $I = 4000$, $C = 1000 + 0.8W + 0.6R$, $w = 10$, $m = \frac{4}{3}$, $a = 16$, $L^* = 2000$, what is the fraction of total labour supply which remains unemployed in the economy?
- (a) 5%
 - (b) 10%
 - (c) 12.5%
 - (d) 25%
20. If $C = 1000 + 0.8W + 0.6R$, $w = 10$, $m = \frac{4}{3}$, $a = 16$, $L^* = 2000$, but I increases from 4000 to 5000, what is the resulting change in the price level in the economy?
- (a) 0%
 - (b) 5% increase
 - (c) 10% increase
 - (d) 20% increase
21. If $C = 1000 + 0.8W + 0.6R$, $w = 10$, $m = \frac{4}{3}$, $a = 16$, $L^* = 2000$, but I increases from 4000 to 7000, what is the resulting change in the price level in the economy?
- (a) 0%
 - (b) 10% increase
 - (c) 20% increase
 - (d) 50% increase

22. If $C = 1200 + 0.8W + 0.6R$, $w = 10$, $m = \frac{4}{3}$, $a = 16$, $L^* = 2000$, but I increases from 4000 to 7000, what is the change in the share of non-wage income in the total income of the economy?
- (a) No change
 - (b) Increases by $\frac{1}{8}$
 - (c) Increases by $\frac{1}{6}$
 - (d) Increases by $\frac{1}{5}$
23. Suppose in a closed economy with no government expenditure and taxation the investment function is given by $I = 2000 + 0.1Y - 8000r$ and the saving function is given by $S = 1000 + 0.2Y + 2000r$ (Y denotes aggregate income and r the nominal rate of interest). The economy is subject to a liquidity trap at $r = 0.01$. What is the maximum equilibrium value of Y possible in this economy?
- (a) 7800
 - (b) 9000
 - (c) 11000
 - (d) None of the above

Questions Nos. 24–27 are to be answered on the basis of the following information :

Suppose there is a consumer whose life is divisible into three periods which follow each other consecutively—youth, middle age and post-retirement age. The length of each period is 20 years and the consumer earns no labour income on post-retirement. In his youth the consumer earns labour income at the rate of Rs 2,500 per month. In his middle age the consumer's earnings are uncertain—there is a 25% probability that he will earn at the rate of Rs 5,000 per month, alternatively, he will earn at the rate of Rs 10,000 per month. The consumer gets to know what his rate of earnings in middle age will be at the end of his youth. Assume that the consumer expects to pay no taxes, the nominal rate of return on saving and the rate of interest is always zero and there is no inflation expected throughout his life.

24. What is the expected value of the consumer's earnings (Rs in lakhs) in middle age?
- (a) 18
 - (b) 20
 - (c) 30
 - (d) None of the above

25. What is the present discounted value of the consumer's expected lifetime labour income (Rs in lakhs)?
- (a) 24
 - (b) 26
 - (c) 27
 - (d) 36
26. Suppose the consumer's attitude towards risk is as follows :
- He prefers an alternative which promises him an amount of Rs X with probability p and an amount of Rs Y ($X > Y$) with probability $1 - p$ to an alternative which promises him an amount of Rs Z for sure if and only if $Z < Y + (2p/3)(X - Y)$. An insurance company approaches the consumer in his youth and offers to pay Rs 7,615 per month to the consumer in his middle age in exchange for his flow of income during that period. Will the consumer accept the offer?
- (a) Yes
 - (b) No
 - (c) The consumer will be indifferent between accepting and declining the offer
 - (d) The consumer's acceptance is a random event
27. Suppose the consumer can borrow any amount in a year but must repay the loan out of future labour income. The consumer wishes to end his life with no assets or liabilities. He plans to have the same constant flow of consumption in the last two periods of his life and wishes to minimize the difference between the expected rate of consumption in these two periods and a constant rate of consumption during his youth. What should be his savings per month (in Rs) during his youth?
- (a) -750
 - (b) -1,250
 - (c) 250
 - (d) None of the above
28. In a bookshop, the sales of scientific books increased by 40% while the sales of engineering books decreased by 50% from 2001 to 2002. If R is the ratio of the number of scientific books to the number of engineering books in 2001 and r the same ratio in 2002, what is k if it is given by $k = r/R$?
- (a) 2.8
 - (b) 1.25
 - (c) 0.2
 - (d) 1

29. Suppose the rate of profit is 20%, profit income is taxed at the rate of 30% and the rate of inflation is 5%. The real post-tax profit rate is
- (a) 9%
 - (b) 10.5%
 - (c) -15%
 - (d) None of the above
30. Bread and apple are substitute goods. A sudden rise in the supply of flour for making bread will result in
- (a) fall in the price of bread; and rise in the price of apple
 - (b) fall in the price of bread; and fall in the price of apple
 - (c) fall in the price of bread; and no change in the price of apple
 - (d) None of the above
31. The utility function of a consumer is $u = 3(x_1 + x_2)$, where u , x_1 and x_2 denote utility, amount of good 1, and amount of good 2 respectively. Unit prices of good 1 and good 2 are Re 1 and Rs 3 respectively. Consumer's income is Rs 300. The consumer attains equilibrium at
- (a) $x_1 = 150$; $x_2 = 50$
 - (b) $x_1 = 50$; $x_2 = 150$
 - (c) $x_1 = 0$; $x_2 = 100$
 - (d) $x_1 = 300$; $x_2 = 0$
32. The production function of a firm is given by $Q = X^{\frac{1}{3}}Y$, where Q , X and Y denote quantities of output, input 1 and input 2 respectively. The production function exhibits
- (a) constant returns to scale
 - (b) increasing returns to scale
 - (c) decreasing returns to scale
 - (d) None of the above

Question Nos. 33-36 are to be answered based on your understanding of the following passage from *Economic Development and the Price Level* by Geoffrey Maynard :

"Unless an appropriate relationship exists between the growth rates of agriculture and industry, the terms of exchange between them must alter. Since agricultural prices typically tend to respond much more rapidly than do the prices of industrial products to changes in the balance between supply and demand, their behaviour determines in large part the behaviour of the general price level. Thus in a situation where agricultural growth is tending to lag to an inappropriate extent behind both the growth of industrial output and the growth of real

income, excess demand pressure tend to appear in the agricultural product market. Whether excess demand or excess supply pressures exist in the industrial market depends on the balance between investment and saving; but, in either case, if agricultural prices are more flexible than industrial prices, then the required improvement in the terms of exchange of agriculture tends to be brought about by an absolute rise in agricultural prices, rather than by a fall in industrial prices. This is not just an immediate or short-run effect, for the rise in agricultural prices tends to generate consequential pressures on costs of production in industry, partly through a direct effect on raw material costs in industry, and partly, perhaps, through an induced effect on industrial money wages. Industrial prices may therefore be prevented from falling, even in a market where there tends to be excess supply; and indeed, if the cost pressures are substantial enough, they may even begin to rise. In this way, the improvement in agriculture's terms of exchange produces a rise in the general price level. Such a development is more likely to take place as the result of a spontaneous slowing down in the rate at which agricultural output is growing, relatively to other outputs; but it may also occur if the improvement in agriculture's terms of exchange is being produced by an acceleration in the rate of growth of industry. For opposite reasons, an acceleration in the rate of growth of agricultural output can produce a fall in the general price level."

33. According to the author, agricultural prices largely determine the behaviour of the general price level, because
- (a) agricultural growth tends to lag behind industrial growth
 - (b) agricultural prices respond to changes in demand-supply balances faster than industrial prices
 - (c) an appropriate relationship exists between agriculture and industry
 - (d) excess demand pressures always appear in this sector
34. Excess demand in the industrial market depends upon
- (a) the excess demand in agriculture
 - (b) whether agricultural prices are more flexible than industrial prices
 - (c) whether cost pressures are substantial enough
 - (d) the balance between saving and investment
35. The rise in agricultural prices
- (a) has only a short-run effect on industrial prices
 - (b) increases industrial costs of production
 - (c) creates excess supply in industry
 - (d) generates a spontaneous slowing down of agricultural output

- 36.** An improvement in agriculture's terms of trade with industry
- (a) can occur when there is a balance between investment and saving
 - (b) occurs when industrial prices are prevented from falling
 - (c) can produce a rise in the general price level
 - (d) is the result of substantial cost pressures in industry
- 37.** In terms of current annual human caused greenhouse gas emissions
- (a) the US is responsible for both the highest per capita and total emissions
 - (b) China is responsible for the highest total (but not per capita) emissions
 - (c) China is responsible for highest per capita and total emissions
 - (d) the US is responsible for the highest total (but not per capita) emissions
- 38.** Utensils worth Rs 1,500 are produced with steel costing Rs 750 and other materials costing Rs 150. Labour cost of producing these utensils is Rs 150 and depreciation of machinery is 0. The value added in producing these utensils is
- (a) Rs 450
 - (b) Rs 600
 - (c) Rs 750
 - (d) None of the above
- 39.** During the last two decades of the 20th century, India's labour force has grown at the rate of
- (a) 1.5% per annum
 - (b) 2.5% per annum
 - (c) 3.5% per annum
 - (d) 4.5% per annum

40. The famous book titled, *Poverty and Un-British Rule in India* was authored by
- (a) W. C. Bonnerjea
 - (b) Dadabhai Naoroji
 - (c) R. C. Dutt
 - (d) Lala Lajpat Rai
41. An outward shift of the production possibility frontier may be caused by
- (a) an increase in demand
 - (b) more government spending
 - (c) better training of employees
 - (d) production inefficiency
42. Let $P(n, m)$ be a property about two integers n and m . If we want to disprove the claim that 'for every integer n , there exists an integer m such that $P(n, m)$ is true', then we need to prove that
- (a) there exist integers n, m such that $P(n, m)$ is false
 - (b) there exists an integer m such that $P(n, m)$ is false for all integers n
 - (c) there exists an integer n such that $P(n, m)$ is false for all integers m
 - (d) for every integer n , there exists an integer m such that $P(n, m)$ is false
43. Let X, Y, Z be statements. Suppose we know that ' X is true implies Y is true', and ' X is false implies Z is true'. If we know that Z is false, then we can conclude that
- (a) both X and Y are true
 - (b) both X and Y are false
 - (c) X is true and Y is false
 - (d) X is false and Y is true

44. Let X, Y, Z be statements. Suppose we know that X implies Y , and that Y implies Z . If we also know that Y is false, we can conclude that
- (a) X is true
 - (b) X is false
 - (c) Z is true
 - (d) Z is false
45. Suppose one wishes to prove that 'if some X are Y , then some Z are W '. To do this, it would suffice to show that
- (a) some X are Z , and some Y are W
 - (b) some Z are X , and some W are Y
 - (c) all X are Z , and all Y are W
 - (d) all Z are X , and all W are Y
46. The annual average rate of employment generation in India during the decade of 1990s, compared to 1980s, was approximately
- (a) thrice
 - (b) twice
 - (c) same
 - (d) half
47. If the marginal cost of producing 4th unit is greater than the marginal cost of producing 3rd unit, then it follows that
- (a) the average cost of producing 4 units must be greater than the average cost of producing 3 units
 - (b) the average cost of producing 4 units must be less than the average cost of producing 3 units
 - (c) the average cost of producing 4 units must be equal to the average cost of producing 3 units
 - (d) None of the above

48. If the absolute value of price elasticity of demand for good X is greater than one, then we must have
- (a) if price increases by 1%, then the quantity demanded will decrease by less than 1%
 - (b) if price decreases by 1%, then the quantity demanded will increase by less than 1%
 - (c) if price of X increases, then the expenditure on the good will increase
 - (d) None of the above
49. Consider the following :
- Option I : You receive Rs 112 after one year.
Option II : You receive Rs 55 after nine months and Rs 56 after one year.
Given that the market rate of interest is 12% per annum, it follows that
- (a) Option I is better than Option II
 - (b) Option II is better than Option I
 - (c) Option I and Option II are equally good
 - (d) No conclusion can be drawn on the basis of the given information
50. Suppose Rs 1,00,000 is deposited in an account for 3 years at 11% per annum, compounded annually. How much money would be there at the end of 3 years?
- (a) Rs 1,33,000
 - (b) Rs 1,34,331.1
 - (c) Rs 1,36,763.1
 - (d) None of the above
51. Suppose the price elasticity of demand for good X is 0.2. If the price of X rises by 2.8%, what effect will it have on the total expenditure on good X ?
- (a) Expenditure on X will fall by 5.6%
 - (b) Expenditure on X will rise by 5.6%
 - (c) Expenditure on X will rise by 2.2%
 - (d) Expenditure on X will fall by 2.2%

52. A box contains red and green balls. The number of green balls is $\frac{1}{3}$ the number of red balls. If a ball is taken randomly from the box, what is the probability that the ball is red?

- (a) $\frac{2}{3}$
- (b) $\frac{1}{3}$
- (c) $\frac{3}{4}$
- (d) None of the above

53. The probability distribution of a random variable X is given in the table below :

X	Probability
0	0.24
1	0.38
2	0.20
3	0.13
4	0.05

The mean and variance of X are respectively

- (a) 2; 2
 - (b) 2; 1.4142
 - (c) 1.37; 1.2731
 - (d) None of the above
54. In a certain country telephone numbers have 8 digits. The first two digits are the area code and are the same within a given area. The last 6 digits are the local number and cannot begin with 0. How many different telephone numbers are possible within a given area code in this country?
- (a) 10^6
 - (b) 9^6
 - (c) 900000
 - (d) None of the above

55. Two dice are rolled. We define events E1, E2, E3 and E4 as follows :

E1 : Getting a sum equal to 10

E2 : Getting a double

E3 : Getting a sum less than 4

E4 : Getting a sum less than 7

Determine which statement is true

- (a) Events E1 and E2 are mutually exclusive
- (b) Events E3 and E4 are mutually exclusive
- (c) Events E2 and E3 are mutually exclusive
- (d) Events E1 and E4 are mutually exclusive

56. Limit of $\frac{e^x - 1}{x}$ as x approaches 0 is equal to

- (a) 0
- (b) 1
- (c) ∞
- (d) None of the above

57. If $f(x)$ and $g(x)$ are differentiable functions such that $f'(x) = 3x$ and $g'(x) = 2x^2$, then the limit $\frac{[f(x) + g(x)] - [f(1) + g(1)]}{(x - 1)}$ as x approaches 1 is equal to

- (a) 5
- (b) 0
- (c) 20
- (d) None of the above

58. Functions g and h are given by $g(x) = \sqrt{x-1}$ and $h(x) = x^2 + 1$. The composite function $(g \circ h)(x)$ is given by

- (a) x
- (b) $|x|$
- (c) \sqrt{x}
- (d) None of the above

59. Equation $x^2 + \frac{1}{2}mx + 1 = 0$ has two distinct real solutions, if
- (a) $m = 3$
 - (b) $m = 4$
 - (c) $m = 5$
 - (d) None of the above
60. Income distribution of most countries follows
- (a) linear pattern
 - (b) normal distribution
 - (c) sinusoidal curve
 - (d) log-normal distribution
61. If $m > n$, which of the following is necessarily true?
- (a) $m^2 > n^2$
 - (b) $mn > 0$
 - (c) $mn > -mn$
 - (d) None of the above
62. If x and y are any real numbers such that $0 < x < 2 < y$, which of the following is necessarily true?
- (a) $x < xy/2 < y$
 - (b) $0 < xy < 2x$
 - (c) $x < xy < 2$
 - (d) $xy < y$
63. A number of the form $213xy$, where x and y are digits, has a remainder less than 10 when divided by 100. The sum of all the digits in the above number is equal to 13. The digit y is
- (a) 5
 - (b) 7
 - (c) 6
 - (d) 8

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64. The graphs of the two equations $y = ax^2 + bx + c$ and $y = Ax^2 + Bx + C$, such that a and A have different signs and that the quantities $b^2 - 4ac$ and $B^2 - 4AC$ are both negative,
- (a) intersect at two points
 - (b) intersect at one point
 - (c) do not intersect
 - (d) None of the above
65. Three solutions of the equation $f(x) = 0$ are $-2, 0$ and 3 . Therefore, the three solutions of the equation $f(x-2) = 0$ are
- (a) $-4, -2$ and 1
 - (b) $-2, 0$ and 3
 - (c) $4, 2$ and 5
 - (d) $0, 2$ and 5
66. If $1.56^x = 2$, then $x =$
- (a) $\log 1.56 / \log 2$
 - (b) $\log 2 / \log 1.56$
 - (c) $2 / \log 1.56$
 - (d) $\log 2 / 1.56$
67. If $\log_{10}(x - y) = 3$ and $\log_{10}(x + y) = 4$, then $x =$
- (a) 3.5
 - (b) 11000
 - (c) 5500
 - (d) 103.5
68. The real solution(s) to the equation $|x - 1| = 2x + 1$ is/are
- (a) -2
 - (b) $-2, 0$
 - (c) -1
 - (d) 0

69. Four dice are thrown. What is the probability that the same number appears on each of them?
- (a) $\frac{1}{36}$
 - (b) $\frac{1}{18}$
 - (c) $\frac{1}{216}$
 - (d) None of the above
70. If $f(x) = -e^x - 2$, then the range of f is given by the interval
- (a) $(-\infty, -2)$
 - (b) $(-\infty, +\infty)$
 - (c) $(-2, +\infty)$
 - (d) $(-\infty, +2)$
71. The mean of a data set is equal to 10 and its standard deviation is equal to 1. If we add 5 to each data value, then the mean and standard deviation become
- (a) mean = 15, standard deviation = 6
 - (b) mean = 10, standard deviation = 6
 - (c) mean = 15, standard deviation = 1
 - (d) mean = 10, standard deviation = 1
72. The sum $\sum_{k=1}^{100} (3+k) =$
- (a) 5053
 - (b) 5050
 - (c) 300
 - (d) 5350
73. How many 4-digit numbers can be formed, if no digit is used more than once?
- (a) 5040
 - (b) 3024
 - (c) 4536
 - (d) None of the above

74. How many of the 4-digit numbers can be formed, if no digit is used more than once, which are divisible by 5?
- (a) 1008
 - (b) 952
 - (c) 896
 - (d) None of the above

Question Nos. 75-78 are to be answered on the basis of the following :

The following table shows the marginal cost of producing n th ($n = 1, 2, \dots, 10$) unit of output by a competitive firm :

Output	Marginal Cost
1	1.0
2	1.3
3	1.7
4	2.3
5	3.0
6	3.9
7	5.0
8	6.5
9	8.2
10	10.0

It is also given that the total cost of producing 3 units of output is 7.

75. The total cost of producing 5 units of output (correct up to two decimal places) is
- (a) 15.00
 - (b) 9.30
 - (c) 12.30
 - (d) None of the above
76. The average variable cost of producing 7 units of output (correct up to two decimal places) is
- (a) 2.60
 - (b) 0.71
 - (c) 3.03
 - (d) None of the above

77. The average cost of producing 9 units of output (correct up to two decimal places) is
- (a) 3.66
 - (b) 3.99
 - (c) 0.91
 - (d) None of the above
78. The profit-maximizing number of units of output for the firm, if the market price of the good is 6, is
- (a) 4
 - (b) 7
 - (c) 10
 - (d) None of the above
79. Suppose there are 3 alternatives x , y and z ; and four individuals 1, 2, 3 and 4. The individuals' rankings (orderings) of the three alternatives, R_i , $i = 1, \dots, 4$ are given by
- $R_1 : (xy)z$
 - $R_2 : yzx$
 - $R_3 : z(xy)$
 - $R_4 : (xy)z$
- (Notation : Alternatives inside the parentheses are indifferent to each other. If an alternative is written to the left of another alternative, then the former is preferred to the latter.)
- Then the set of Pareto-optimal alternatives is
- (a) $\{x \cdot y\}$
 - (b) $\{x \cdot z\}$
 - (c) $\{y \cdot z\}$
 - (d) None of the above
80. With a positive externality
- (a) there is underconsumption in the free market
 - (b) there is overconsumption in the free market
 - (c) the government may tax to decrease production
 - (d) society could be made better-off if less was produced

81. A circle of area A passes through the points $(8, 0)$ and $(0, 6)$. Then we must have
- (a) $A < 25\pi$
 - (b) $A \geq 25\pi$
 - (c) $A = 100\pi$
 - (d) None of the above
82. For what value(s) of the parameter m does the equation $-2x^2 + mx = 2$ have one solution only?
- (a) 0
 - (b) $-2, 2$
 - (c) $-1, 1$
 - (d) $-4, 4$
83. The Cash Reserve Ratio refers to
- (a) the liquid cash that banks have to maintain with the Reserve Bank of India as a certain percentage of their demand and time deposits
 - (b) the cash that banks have to keep in their vaults in order to meet sudden demand from depositors in times of crisis
 - (c) the cash that households have to keep in reserve to meet sudden increases in the price of essential goods and services
 - (d) the cash that the government keeps in reserve so as to be ready to meet unexpected contingencies
84. The probability that Mr. A will be booked for illegal parking in the central market is $\frac{1}{3}$. During the last nine days, Mr. A has illegally parked everyday but has not been booked. Today, on the 10th day, he again decides to park illegally. The probability that he will be booked today is
- (a) greater than $\frac{1}{3}$
 - (b) less than $\frac{1}{3}$
 - (c) equal to $\frac{1}{3}$
 - (d) There is not enough information to make the required inference

- 85.** The primary deficit refers to
- (a) the deficit in the primary sector of the economy
 - (b) the deficit in the revenue account of the budget
 - (c) the deficit in the capital account of the budget
 - (d) the fiscal deficit less the interest outgo in the budget
- 86.** The money multiplier in an economy increases with
- (a) increase in Cash Reserve Ratio
 - (b) increase in Statutory Liquidity Ratio
 - (c) increase in banking habit of the population
 - (d) increase in the population of the country

Question Nos. **87** and **88** are to be answered on the basis of the following information :

The market for a good consists of 100 buyers and 50 sellers. Each seller has the same supply function, which is given by

$$\begin{aligned} \text{Supply} &= 0 \text{ if price} \leq 10 \\ &= p - 10 \text{ if price} > 10 \end{aligned}$$

Each buyer has the same demand function, which is given by

$$\begin{aligned} \text{Demand} &= 0 \text{ if price} \geq 20 \\ &= 20 - p \text{ if price} < 20 \end{aligned}$$

- 87.** Market demand function is given by
- (a) Market demand = $2000 - 100p$
 - (b) Market demand = $2000 - 100p$, if $p < 20$; and Market demand = 0, if $p \geq 20$
 - (c) Market demand = $2000 - 100p$, if $p < 2000$; and Market demand = 0, if $p \geq 2000$
 - (d) None of the above

88. Let the market equilibrium price be denoted by p^* . Then
- (a) $10 < p^* < 11$
 - (b) $14 < p^* < 15$
 - (c) $16 < p^* < 17$
 - (d) None of the above
89. Let A be the set $\{f(x) \mid 0 < x < 1\}$. What does it mean if we say that y is not an element of A ?
- (a) $f(y)$ is not an element of A
 - (b) $f(y)$ is not between 0 and 1
 - (c) y is not between $f(0)$ and $f(1)$
 - (d) None of the above
90. Which of the following statements is false?
- (a) The numbers 4, 5, 6, 7 have the same standard deviation as the numbers 1231, 1232, 1233, 1234
 - (b) The numbers 1, 5, 7, 9 have a smaller standard deviation than the numbers 1231, 1235, 1237, 1239
 - (c) The numbers 1, 5, 6, 10 have a larger standard deviation than the numbers 1231, 1232, 1233, 1234
 - (d) The numbers 1, 2, 9, 10 have the same standard deviation as the numbers 1231, 1232, 1239, 1240

Question Nos. 91 and 92 are to be answered on the basis of the following information :

One of *A*, *B*, *C* and *D* has cheated in the examination with the help of another one of them. Here are the statements that these individuals made to the investigator.

A : If *B* is guilty of some wrong-doing, then *C* must be innocent.

B : If *A* is innocent, then *C* must be guilty.

C : If *B* cheated in the examination, then *D* must have had nothing to do with any wrong-doing.

D : I am innocent.

The statements of the person who has cheated and his accomplice are false and those of the remaining two are true.

91. The person who cheated in the examination was

(a) *A*

(b) *B*

(c) *C*

(d) *D*

92. The accomplice of the person who cheated in the examination was

(a) *A*

(b) *B*

(c) *C*

(d) *D*

93. There are four candidates for an award—*A*, *B*, *C* and *D*

Only one of the four candidates had cleared both Tests I and II.

Only one candidate had cleared both Tests I and III.

Only one candidate had cleared both Tests I and IV.

Only one candidate had cleared both Tests II and III.

Only one candidate had cleared both Tests II and IV.

Only one candidate had cleared both Tests III and IV.

Both *A* and *B* had cleared Test I.

Both *C* and *D* had cleared Test II.

Both *B* and *C* had cleared Test III.

D had cleared Test IV.

The award went to the candidate who had cleared more tests than any other candidate.

The award was given to

(a) *A*

(b) *B*

(c) *C*

(d) *D*

94. A firm has a production function $q = 4x^{\frac{1}{2}}$, where q and x denote the quantities of output and input respectively. If the price of the output is Rs 90 per unit and the price of the input is Rs 20 per unit, the firm can earn a maximum profit of
- (a) Rs 1,620
 - (b) Rs 3,600
 - (c) Rs 808
 - (d) None of the above
95. The short-run supply curve of a competitive firm is given by
- (a) the marginal cost curve of the firm
 - (b) the marginal cost curve above the average cost curve
 - (c) the marginal cost curve above the average variable cost curve
 - (d) the upward sloping part of the marginal cost curve
96. In situation I : Price of good X is twice the price of good Y; and the consumer spends his entire income on buying 6 units of good X and 20 units of good Y. In situation II : Consumer's income is double of his income in situation I, price of good Y is twice the price of good Y in situation I, and the price of good X is the same as in situation I. The consumer wants to continue consuming 20 units of good Y in situation II. The maximum number of units of good X that he can purchase in situation II is
- (a) 12
 - (b) 14
 - (c) 16
 - (d) 6
97. Let units of good 1 be measured on the horizontal axis and units of good 2 on the vertical axis. Let price of good 1 be p and price of good 2 be q . The slope of the budget line is then given by
- (a) p/q
 - (b) $-p/q$
 - (c) q/p
 - (d) $-q/p$

Question Nos. 98-100 are to be answered on the basis of the following information :

Five teachers *R, S, T, U, V* teach five different subjects- Mathematics, History, Sociology, Economics, Literature. Each teacher teaches once a week on a fixed weekday (Monday through Friday); and each one teaches on a different day from others.

V does not teach Economics; and does not teach on Tuesdays.

S teaches History; and does not teach on a Monday or a Friday.

The Mathematics teacher teaches on Thursdays.

T does not teach Economics; and teaches on Wednesdays.

The Literature teacher, who is not *U*, teaches on Fridays.

R teaches on Mondays.

98. On which day does *S* teach?

- (a) Tuesday
- (b) Thursday
- (c) Friday
- (d) None of the above

99. Which subject does *T* teach?

- (a) Economics
- (b) Sociology
- (c) Mathematics
- (d) Literature

100. On which day is Economics taught?

- (a) Monday
- (b) Tuesday
- (c) Wednesday
- (d) None of the above

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QUESTION PAPER
SERIES CODE

A

JNUEE: Question Papers (2006-2010) Rs.20/-

ENTRANCE EXAMINATION, 2010

M.A. ECONOMICS

[Field of Study Code : ECOM (216)]

Time Allowed : 3 hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

Candidates must read carefully the following instructions before attempting the Question Paper :

- (i) Write your Name and Registration Number in the space provided for the purpose on the top of this Question Paper and in the Answer Sheet.
- (ii) Please darken the appropriate Circle of Question Paper Series Code on the Answer Sheet.
- (iii) All questions are compulsory.
- (iv) Answer all the 100 questions in the Answer Sheet provided for the purpose by darkening the correct choice, i.e., (a) or (b) or (c) or (d) or (e) with a BALLPOINT PEN only against the corresponding circle. Any overwriting or alteration will be treated as wrong answer.
- (v) Each correct answer carries 1 mark. There will be negative marking and 1/2 mark will be deducted for each wrong answer.
- (vi) Answer written by the candidates inside the Question Paper will not be evaluated.
- (vii) Pages at the end have been provided for Rough Work.
- (viii) Return the Question Paper and Answer Sheet to the Invigilator at the end of the Entrance Examination. **DO NOT FOLD THE ANSWER SHEET.**

INSTRUCTIONS FOR MARKING ANSWERS

1. Use only Blue/Black Ballpoint Pen (do not use pencil) to darken the appropriate Circle.
2. Please darken the whole Circle.
3. Darken ONLY ONE CIRCLE for each question as shown in example below :

Wrong ● (b) (c) ●	Wrong ● (a) (b) (c) (d)	Wrong ● (a) (b) (c) ●	Wrong ● (a) (b) (c) ●	Correct ● (a) (b) (c) ●
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4. Once marked, no change in the answer is allowed.
5. Please do not make any stray marks on the Answer Sheet.
6. Do rough work only on the pages provided for this purpose.
7. Mark your answer only in the appropriate space against the number corresponding to the question.
8. Ensure that you have darkened the appropriate Circle of Question Paper Series Code on the Answer Sheet.

1. In a closed economy, the balanced budget multiplier is
 - (a) equal to 1
 - (b) less than 1
 - (c) more than 1
 - (d) dependent on the marginal propensity to consume in the economy

2. Stagflation describes a situation of
 - (a) rising prices and rising output
 - (b) rising prices and falling or stagnant output
 - (c) falling or stagnant prices and rising output
 - (d) falling or stagnant prices and falling or stagnant output

3. If Canada has a comparative advantage in the production of wheat compared to the United States, it means that
 - (a) the opportunity cost of producing wheat is higher in Canada than in the US
 - (b) the opportunity cost of producing wheat is lower in Canada than in the US
 - (c) with free trade, Canada will export all of its wheat
 - (d) with free trade, the US will not produce any wheat

4. Infant industry protection is
 - (a) the policy of ensuring that children are not adversely affected by industrial pollution
 - (b) the policy of protecting a new domestic industry from lower cost imports
 - (c) the policy of providing bank credit to industries run by weaker off sections
 - (d) the policy of subsidizing imports in newly industrializing countries

5. For the countries in the European Union that share a common currency, the euro,
 - (a) it is impossible to have different real exchange rates from one another
 - (b) it is possible to have real exchange rates that are different from one another
 - (c) the nominal and real exchange rates will always vary according to fiscal policy
 - (d) the nominal and real exchange rates will always vary according to capital flows

6. The current account balance in an open economy
 - (a) always includes the balance on investment income
 - (b) never includes the balance on investment income
 - (c) includes the balance on investment income and flows of investment
 - (d) includes flows of investment but not the balance on investment income

7. A streetlight is considered as a good example of a public good
 - (a) because it is provided in public spaces
 - (b) because its consumption is non-rival and non-excludable
 - (c) because its consumption is rival but non-excludable
 - (d) because its consumption is non-rival but excludable

8. The bottom 20 percent of the world's population are estimated to receive around this much of global income
 - (a) less than 1 percent
 - (b) around 5 percent
 - (c) around 10 percent
 - (d) around 15 percent

9. If an economy is a price taker in world markets for both exports and imports, exchange rate devaluation
 - (a) will have no effect on the balance of trade
 - (b) will cause the balance of trade to improve
 - (c) will cause the balance of trade to deteriorate
 - (d) will turn a trade deficit into a balance

10. The 'Gold Standard' refers to an international currency regime under which
- (a) only gold was used in international transactions
 - (b) only gold was used as money in domestic transactions
 - (c) countries officially linked their money supply to a specific value of gold
 - (d) countries officially linked the value of their money to a specific weight of gold

The next six questions 11–16 are based on the following table which gives the variable cost of producing the different levels of output of a commodity that a competitive firm might produce :

<i>Output</i>	<i>Variable Cost of Production</i>
0	0
1	25
2	42
3	54
4	64
5	75
6	93
7	112
8	140
9	180
10	230

The sunk cost of production in the short run is 15.

11. If the price of the commodity is 20, then the profit-maximizing level of output is
- (a) 6
 - (b) 7
 - (c) 8
 - (d) 9

12. If the price of the commodity is 19, then the profit-maximizing level of output is
- (a) 6
 - (b) 7
 - (c) 8
 - (d) 9
13. Let $\pi(20)$ denote the profit of the firm when the price of the output is 20 and let $\pi(19)$ denote the profit of the firm when the price of the output is 19. Which of the following is correct?
- (a) $\pi(20) = \pi(19) = 6$
 - (b) $\pi(20) < \pi(19)$
 - (c) $\pi(20) > \pi(19)$
 - (d) $\pi(20) = \pi(19) = 23$
14. If the price of the commodity is 14, then the profit-maximizing level of output is
- (a) 4
 - (b) 5
 - (c) 0
 - (d) None of the above
15. If the price of the commodity is 17, then the profit-maximizing level of output is
- (a) 1
 - (b) 2
 - (c) 3
 - (d) 5

16. If the price of the commodity is 17, then at the profit-maximizing level of output the firm
- (a) incurs a loss of 5
 - (b) incurs a loss of 15
 - (c) makes a profit of 7
 - (d) None of the above

17. If good x and good y are perfect substitutes, then the indifference curves will be
- (a) strictly convex to the origin
 - (b) strictly concave to the origin
 - (c) straight lines
 - (d) L-shaped

18. A monopolist faces the following demand function $D(P)$:

$$\begin{aligned} D(P) &= 10 \text{ for } P \text{ in the interval } [0, 10] \\ &= 20 - P \text{ for } P \text{ in the interval } (10, 20) \\ &= 0 \text{ for } P \text{ in the interval } [20, \infty) \end{aligned}$$

Now suppose that the monopolist has zero-variable cost of production. However, if it produces any positive amount, it must incur a fixed cost of Rs 50. What is the optimal monopoly price?

- (a) 15
- (b) 10
- (c) 5
- (d) There is no monopoly equilibrium

The next two questions 19 and 20 are based on the following :

Suppose a consumer wants to consume two commodities both of which are available only in discrete units. Let the prices of the goods be Rs 4 and Rs 3 respectively. The consumer's income is Rs 10.

19. The consumer's budget set is
- (a) $\{(x_1, x_2) | 4x_1 + 3x_2 \leq 10 \text{ and } x_1, x_2 \geq 0\}$
 - (b) $\{(0, 0), (0, 1), (0, 2), (0, 3), (1, 0), (1, 1), (1, 2), (2, 0)\}$
 - (c) $\{(0, 1), (0, 2), (0, 3), (1, 0), (1, 1), (1, 2), (2, 0)\}$
 - (d) $\{(1, 2)\}$

20. Suppose the price of both commodities fall by 10 paise and money income increases by 10 paise. If the preference of the consumer over the two goods have not changed, then
- (a) at the optimum, the consumer would consume more of both commodities
 - (b) at the optimum, the consumer would consume more of commodity 1 and less of commodity 2
 - (c) at the optimum, the consumer would consume less of commodity 1 and more of commodity 2
 - (d) the consumer's optimal bundle does not change
21. Satish is very conscious about the food he eats. He only eats *rotis* and *dal*; a cup of *dal* costs Rs 2 while each *roti* costs Re 1 and Satish decides to spend only Rs 13 per day on food. Also he decides to consume exactly 5500 calories a day; he has been told that each *roti* has 1000 calories while each cup of *dal* has 500 calories. He spends his entire money allocated on foods. Then
- (a) he consumes 3 *rotis* and 5 cups of *dal* per day
 - (b) he consumes no more than 3 *rotis* per day
 - (c) he consumes no more than 5 cups of *dal* per day
 - (d) he consumes 5 *rotis* and 4 cups of *dal* per day
22. A monopolist has a demand curve with constant price elasticity with absolute value 4. The monopolist charges a price of 60 per unit of output. What is its marginal cost at this level of output?
- (a) 23.5
 - (b) 136
 - (c) 45
 - (d) 54
23. In a two-good world, a consumer's utility function is given by the following :
 $U(x, y) = \max \{x, y\}$, where x and y are the amounts consumed of the first and second good respectively. The price of both goods are Rs 2 per unit. The consumer's income is Rs 100. His optimal consumption bundle is
- (a) either (i) zero unit of x and 50 units of y or (ii) 50 units of x and zero unit of y
 - (b) 50 units of x and 50 units of y
 - (c) 25 units of x and 25 units of y
 - (d) None of the above

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24. A firm has a production function $q = A \cdot K^{0.5} L^{1.8}$, where A is a positive constant. Such a production function exhibits
- (a) decreasing returns to scale and diminishing marginal product for factor K
 - (b) increasing returns to scale and diminishing marginal product for factor K
 - (c) decreasing returns to scale and increasing marginal product for factor K
 - (d) constant returns to scale with increasing marginal product for factor L
25. The short-run supply curve for a competitive firm is given by
- (a) the marginal cost curve of the firm
 - (b) the marginal cost curve above the average cost curve
 - (c) the marginal cost curve above the average variable cost curve
 - (d) the upward sloping part of the marginal cost curve
26. If X_1, X_2, \dots, X_n are non-negative real numbers, then their
- (a) Arithmetic Mean \leq Geometric Mean
 - (b) Geometric Mean \leq Arithmetic Mean
 - (c) Arithmetic Mean = 0.5 (Geometric Mean)
 - (d) There is no fixed relationship between Arithmetic Mean and Geometric Mean
27. If $(x/b) > (b/d)$, then
- (a) $xc > b^2$
 - (b) $xc < b^2$
 - (c) $xc = b^2$
 - (d) Cannot say anything about relation between x , b and c
28. Let $f(x) = (\log(x))/x$, where $0 < x < 1$. Then for all x such that $0 < x < 1$
- (a) $f'(x) < 0$
 - (b) $f'(x) > 0$
 - (c) $f'(x) > 0$, if $0 < x < 0.75$ and $f'(x) < 0$, if $0.75 \leq x < 1$
 - (d) $f'(x) > 0$, if $0 < x < 0.5$ and $f'(x) < 0$, if $0.5 \leq x < 1$

29. Given two numbers $x = (3\sqrt{7} + 4\sqrt{7})^2$ and $y = 343$, which of the following must be true?
- (a) $x > y$
 - (b) $y > x$
 - (c) $x = y$
 - (d) $x = y/2$
30. Beena's average score after 8 class tests is 84. In her first 7 class tests, Beena's average score was 85. In her last class test, Beena has scored
- (a) 82
 - (b) 87
 - (c) 77
 - (d) None of the above
31. The function $f(x) = \log_{10} x$ is continuous over the interval
- (a) $(-a, a]$, where $a > 0$
 - (b) $(-\infty, +\infty)$
 - (c) $[-a, a]$, where $a > 0$
 - (d) $(0, 1)$
32. If $a \cdot b = M$, M is different from 0 and $(a + b) = 4$, then
- (a) there are always real values for a, b
 - (b) whenever $4 \geq M > 0$ there are real values for a, b
 - (c) whenever $0 > M$ there are positive values for both a, b
 - (d) whenever $0 > M$ there are negative values for both a, b
33. Let X_1, X_2, \dots, X_{20} and Y_1, Y_2, \dots, Y_n be two collections of sets. Suppose every X_i contains 5 elements and every Y_j contains 2 elements and $\bigcup_{i=1}^{20} X_i = S = \bigcup_{j=1}^n Y_j$. If each element of S belongs to exactly 10 of the X_i 's and to exactly 4 of the Y_j 's, then n is
- (a) 10
 - (b) 20
 - (c) 100
 - (d) 50

34. Suppose interest is compounded half-yearly at the rate of 10% per annum. If the present value of an asset which returns a fixed sum of Rs X after one year and nothing thereafter is Rs 50,000, then X is equal to
- (a) Rs 54,875
 - (b) Rs 55,000
 - (c) Rs 55,125
 - (d) Rs 55,250
35. If the elasticity of $f(x)$ with respect to x is 0.5 ($f(x) > 0$ and $x > 0$), then the elasticity of $f(x)/x$ with respect to x is
- (a) -0.5
 - (b) 0
 - (c) 0.5
 - (d) 1
36. In an examination, there are three multiple-choice questions and each question has 4 choices. Number of ways in which a student can fail to get all answers correct is
- (a) 12
 - (b) 27
 - (c) 63
 - (d) 72
37. A function is selected at random from all the functions of the set $A = \{1, 2, 3, \dots, n\}$ in to itself. The probability that the function selected is one-to-one is
- (a) $\frac{1}{n^n}$
 - (b) $\frac{2}{(n-1)!}$
 - (c) $\frac{1}{n!}$
 - (d) $\frac{(n-1)!}{n^{n-1}}$

38. A fair die has given the number 6 on five consecutive throws. What is the probability that the next throw will also give the number 6?
- (a) $1/30$
 - (b) $1/6$
 - (c) $5/6$
 - (d) None of the above
39. The number $0.999999\dots$ is
- (a) exactly equal to 1
 - (b) slightly less than 1
 - (c) slightly more than 1
 - (d) between 0.99 and 0.999
40. Let $S = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots$
Then
- (a) S is equal to 4
 - (b) S is equal to 6
 - (c) S is equal to 8.5
 - (d) the sum S does not converge to any finite value
41. Which of the following is a function?
- (a) A rule that assigns the circumference of a rectangle to its area
 - (b) A rule that assigns to each number its square root
 - (c) A rule that assigns to each person in a classroom his or her height
 - (d) A rule that assigns the salary of a person to his or her years of education

The next four questions 42–45 are based on the following :

Consider a country in which there are four different types of people Red, Blue, Green and Yellow. All Reds earn the same income. The same is true about the Blues, Greens and Yellows. However the Red income, the Blue income, the Green income and Yellow income can be different from each other. A distribution of income of the country (D_i) specifies the Red income, Blue income, Green income and Yellow income and also the number of Reds, Blues, Greens and Yellows. The following table gives the possible income distributions for the country :

	Income				Number of Individuals			
	Red	Blue	Green	Yellow	Red	Blue	Green	Yellow
D_1	1	2	3	4	1	1	1	1
D_2	3	4	1	2	1	1	1	1
D_3	5	10	15	20	1	1	1	1
D_4	0.8	1.6	2.4	5.2	1	1	1	1
D_5	2.5	2.5	2.5	2.5	1	1	1	1
D_6	1	2	3	4	5	5	5	5

42. Let G_i denote the Gini coefficient for the income distribution i . Which of the following is true?

- (a) $G_5 < G_1 = G_2 = G_3 = G_6 = G_4$
- (b) $G_5 < G_1 = G_2 = G_3 = G_6 < G_4$
- (c) $G_1 > G_2 > G_3 > G_4 > G_5 > G_6$
- (d) $G_1 < G_2 < G_3 < G_4 < G_5 < G_6$

43. Let σ_i denote the standard deviation for the income distribution i . Which of the following is true?

- (a) $\sigma_5 < \sigma_1 = \sigma_2 = \sigma_6 < \sigma_4 < \sigma_3$
- (b) $\sigma_5 < \sigma_1 = \sigma_2 = \sigma_6 < \sigma_3 < \sigma_4$
- (c) $\sigma_5 < \sigma_1 = \sigma_2 < \sigma_6 < \sigma_4 < \sigma_3$
- (d) $\sigma_5 < \sigma_1 = \sigma_6 < \sigma_2 < \sigma_4 < \sigma_3$

44. Let μ_i denote the median for the income distribution i . Which of the following is true?
- (a) $\mu_4 < \mu_1 = \mu_2 = \mu_5 < \mu_6 < \mu_3$
 - (b) $\mu_4 < \mu_1 = \mu_2 = \mu_5 = \mu_6 < \mu_3$
 - (c) The mean is equal to the median for each of the given distributions
 - (d) The mean is different from the median for each of the given distributions
45. Consider the five income distributions D_1, D_2, D_3, D_4, D_5 . Which of the following is true?
- (a) There is no Pareto-optimal distribution
 - (b) All distributions are Pareto-optimal
 - (c) D_3 is the only Pareto-optimal distribution
 - (d) D_1 and D_3 are the only Pareto-optimal distributions

The next three questions 46–48 are based on the following :

Ms. A wishes to renovate her cottage. She hires the services of a plumber, a carpenter, a painter, an electrician and an interior decorator. The renovation is to be completed in a period of one working week, i.e., Monday to Friday. Every worker will be taking one complete day to do his job. Ms. A will allow just one person to work per day.

The painter can do his work only after the plumber and the carpenter have completed their jobs. The interior decorator has to complete his job before that of the electrician. The carpenter cannot work on Monday or Tuesday.

46. In case the painter works on Thursday, which among the following alternatives is possible?
- (a) The electrician works on Tuesday
 - (b) The electrician works on Friday
 - (c) The interior decorator does his work after the painter
 - (d) The plumber and the painter work on consecutive days
47. In case the painter works on Friday, which among the following statements must be untrue?
- (a) The carpenter may work on Wednesday
 - (b) The carpenter and the electrician may work on consecutive days
 - (c) In case the carpenter works on Thursday, the electrician has to work on the previous day, i.e., Wednesday
 - (d) The plumber may work before the electrician does

48. Which arrangement among the following is possible?
- (a) The painter will work on Wednesday and the plumber on Thursday
 - (b) The carpenter will work on Tuesday and the painter on Friday
 - (c) The painter will work on Monday and the carpenter on Thursday
 - (d) The carpenter will work on Wednesday and the plumber on Thursday
49. There are two egg delivery boys you can order eggs from. The probability of the first boy falling and breaking all the eggs is $\frac{1}{2}$ and the probability of the second boy falling and breaking all the eggs is $\frac{1}{5}$. How would you distribute your order for eggs so as to minimize expected total loss of eggs?
- (a) Order all your eggs from the first boy
 - (b) Order all your eggs from the second boy
 - (c) Distribute the order for eggs between the two boys equally
 - (d) Order three-fourths of your eggs from the first boy and the rest from the second boy
50. If you integrate the function $f(x) = 1/x$ from 1 to 3, you get
- (a) 2
 - (b) $\log 3$
 - (c) $\log 4$
 - (d) None of the above
51. If $x < y + \epsilon$, for all $\epsilon > 0$, then
- (a) $x > y$
 - (b) $x \leq y$
 - (c) $x > 0 > y$
 - (d) $x < 0 < y$
52. The rate of interest is
- (a) a flow variable
 - (b) a stock variable
 - (c) the ratio of a flow variable to a stock variable
 - (d) the ratio of a stock variable to a flow variable

53. The fiscal deficit is
- (a) a flow variable
 - (b) a stock variable
 - (c) the ratio of a flow variable to a stock variable
 - (d) the ratio of a stock variable to a flow variable
54. If in a given year a country's GDP at constant prices is 1000 currency units and the value of its implicit GDP deflator for that year is 110, the value of the country's GDP at current prices (in its currency units) is.
- (a) 890
 - (b) 909.09
 - (c) 990.09
 - (d) 1100
55. Suppose the difference between the transactions velocity and the income velocity of circulation of money in an economy is 5 and the money value of total transactions is 6 times the money value of aggregate income. If the quantity of money in circulation is 1000 currency units, then the money value of aggregate income in currency units is
- (a) 1000
 - (b) 1200
 - (c) 1500
 - (d) 1800
56. Suppose an asset provides returns of Rs 315 after one year, Rs 661.50 after two years and Rs 1389.15 after three years and nothing thereafter. If interest is compounded yearly and the rate of interest is 5% per annum, what is the present discounted value of the asset?
- (a) Rs 2,050
 - (b) Rs 2,100
 - (c) Rs 2,200
 - (d) Rs 2,250

57. Suppose a plant can be used to produce in a day x units of product 1 and y units of product 2 where $y = (32 - 5x)/(10 - x)$, where $32/5 \geq x \geq 0$. If the unit price of product 1 is twice the unit price of product 2, then to maximize total revenue the number of units of x the plant should be used to produce in a day is

- (a) 4
- (b) 5
- (c) 6
- (d) 6.4

The next four questions 58-61 are based on the following :

Suppose, in equilibrium, aggregate income (in units of money per year) in an economy $Y = C + I$, where investment expenditure (in units of money per year) $I = 1000$ and aggregate consumption expenditure (in units of money per year) C satisfies the following conditions :

- (i) C is a function of current disposable income in the economy (Y_d)
- (ii) If $Y_d = 0$, then $C = 500$.
- (iii) Marginal propensity to save out of Y_d is constant in the economy and equal to 30%

Suppose the government collects direct tax revenues equal to 15% of Y and makes direct transfer payments equal to 750 units of money per year.

58. What is the value of the investment multiplier in the economy?

- (a) Between 1.9 and 2.1
- (b) Between 2.1 and 2.3
- (c) Between 2.3 and 2.5
- (d) More than 2.5

59. What is the equilibrium value of Y in the economy?

- (a) Between 3250 and 3750
- (b) Between 3750 and 4250
- (c) Between 4250 and 4750
- (d) Between 4750 and 5250

- 60.** If instead of 750 units of money the government makes annual transfer payments equal to 10% of Y , then the value of the investment multiplier will
- (a) decrease by less than unity
 - (b) decrease by more than unity
 - (c) increase by less than unity
 - (d) increase by more than unity
- 61.** If instead of 750 units of money the government makes annual transfer payments equal to 10% of Y , then the equilibrium value of Y will
- (a) decrease by less than 1000
 - (b) decrease by more than 1000
 - (c) increase by less than 1000
 - (d) increase by more than 1000

The next three questions **62-64** are based on the following information :

A student has taken 5 courses : Philosophy, Biology, Economics, Mathematics and Literature. He studies for these courses according to the following pattern :

Every week the student studies for exactly three courses.

If he studies Biology in a week, then he also studies Philosophy that week.

If he studies Economics in a particular week, then he does not study it in the following week.

In any particular week he studies not more than one of the subjects studied in the preceding week.

- 62.** Which of the following is a possible sequence of combinations for the student in the two successive weeks?
- (a) Week 1 : Philosophy, Biology, Economics; Week 2 : Biology, Mathematics, Literature
 - (b) Week 1 : Philosophy, Biology, Mathematics; Week 2 : Philosophy, Biology, Literature
 - (c) Week 1 : Philosophy, Mathematics, Literature; Week 2 : Philosophy, Biology, Economics
 - (d) Week 1 : Biology, Mathematics, Literature; Week 2 : Philosophy, Economics, Mathematics

63. If the student studies Philosophy, Biology and Economics in the first week, which of the following combinations must be studied in the third week?
- (a) Philosophy, Biology and Economics
 - (b) Philosophy, Biology and Mathematics
 - (c) Philosophy, Economics and Mathematics
 - (d) Economics, Mathematics and Literature
64. If the student studies Philosophy, Literature and Mathematics in the first week, which of the following combinations must be studied in the eleventh week?
- (a) Philosophy, Literature and Mathematics
 - (b) Philosophy, Biology and Mathematics
 - (c) Philosophy, Economics and Mathematics
 - (d) Economics, Mathematics and Literature
65. If x , y and z are consecutive negative integers, and if $x > y > z$, which of the following must be a positive odd integer?
- (a) xyz
 - (b) $(x - y)(y - z)$
 - (c) $x - yz$
 - (d) $x(y + z)$
66. Suppose one wishes to prove that "if all X are Y , then all Z are W ". To do this, it would suffice to show that
- (a) all Z are X , and all W are Y
 - (b) all Y are Z , and all W are X
 - (c) all X are Z , and all Y are W
 - (d) all Z are X , and all Y are W
67. Let X and Y be statements. If we want to *disprove* the claim that " X implies Y ", we need to show that
- (a) X is false
 - (b) Y is false
 - (c) X is true, but Y is false
 - (d) Y is true, but X is false

68. Let X, Y and Z be statements. Suppose we know that X implies Y , and that Z implies X . We also know that Y is false. We can infer that
- (a) X is false, and Z is true
 - (b) X is true, and Z is false
 - (c) both X and Z are true
 - (d) both X and Z are false
69. Let X and Y be statements. Which of the following strategies is **not** a valid way to show that " X implies Y "?
- (a) Show that some statements Z implies Y , and then show that X implies Z
 - (b) Show that either X is false, or Y is true, or both
 - (c) Assume that X is false, and Y is true, and deduce a contradiction
 - (d) Assume that X is true, and Y is false, and deduce a contradiction
70. Let $P(n, m)$ be a property about two integers n and m . If we want to prove that "for every integer n , there exists an integer m such that $P(n, m)$ is true", then we should do the following
- (a) Let n and m be arbitrary integers. Then show that $P(n, m)$ is true
 - (b) Find an integer m such that $P(n, m)$ is true for every integer n
 - (c) Let n be an arbitrary integer. Then find an integer m possibly depending on n such that $P(n, m)$ is true
 - (d) Find an integer n and an integer m such that $P(n, m)$ is true
71. Let X and Y be statements. If we know that X implies Y , then we can also conclude that
- (a) X is true, and Y is also true
 - (b) if X is false, then Y is false
 - (c) if Y is true, then X is true
 - (d) if Y is false, then X is false

- 72.** Let X , Y and Z be statements. Suppose we know that X implies Y , and that Y implies Z . If we also know that X is false, we can infer that
- (a) Y is true, and Z is false
 - (b) Y is false, and Z is true
 - (c) both Y and Z are false
 - (d) None of the above
- 73.** The United States is a major exporter of
- (a) diamond
 - (b) bauxite
 - (c) coffee
 - (d) corn
- 74.** The terms of trade are
- (a) the countries' production possibilities curve
 - (b) the autarky equilibrium
 - (c) the exchange rate of the two goods being traded
 - (d) the value of exports
- 75.** Autarky means that
- (a) a country's consumption possibilities are given by its production possibilities
 - (b) equilibrium attained with the maximum gains from specialization and trade
 - (c) equilibrium has been reached with the maximum amount of international trade
 - (d) the nation has such a high standard of living that there are no poor people
- 76.** Linear accelerator has the following characteristic
- (a) Depends on expectations and has the dimension of time
 - (b) Depends on expectations and has the dimension of inverse time
 - (c) Does not depend on expectations and has the dimension of time
 - (d) Does not depend on expectations and has no time dimension

- 77.** If the saving propensity is 14% and the incremental capital output ratio is 4, and the population rate of growth is 3%, there is constant returns to scale and no technical progress
- (a) warranted rate of growth is greater than the natural rate of growth
 - (b) warranted rate of growth is less than the natural rate of growth
 - (c) the economy will always grow at 3% rate of growth
 - (d) the economy will always grow at more than 3% rate of growth
- 78.** There are four bus routes between *A* and *B* and three bus routes between *B* and *C*. A man can travel round trip in number of ways by bus from *A* to *C* via *B*. If he does not want to use a bus route more than once, in how many ways can he make round trip?
- (a) 72
 - (b) 144
 - (c) 14
 - (d) 19
- 79.** The Economics Nobel Prize for the year 2009 was awarded to
- (a) Elinor Ostrom and Oliver Williamson
 - (b) Paul Krugman
 - (c) John Nash
 - (d) Robert Aumann and Thomas Schelling
- 80.** Consider the set $A = \{x | 0 < x < 1\}$. What is the minimum number that belongs to set *A*?
- (a) 0
 - (b) 0.001
 - (c) 0.00002
 - (d) There is no minimum number in set *A*
- 81.** In the list of five countries given below, choose the one which has a positive trade surplus
- (a) USA
 - (b) Great Britain
 - (c) Greece
 - (d) China

82. Which one of the statements given below is correct for the year 2000-01?
- (a) The primary sector of the Indian economy is 50% of the GDP
 - (b) The tertiary sector of the Indian economy is 50% of the GDP
 - (c) The GDP contribution of the primary sector of the Indian economy is larger than that of the secondary sector
 - (d) The GDP contribution of the secondary sector of the Indian economy is larger than that of the tertiary sector
83. If utensils worth Rs 100 are produced with steel worth Rs 50, wages paid are Rs 10, depreciation of machinery is 0 and other material purchased is Rs 10, then value added in the process is
- (a) Rs 40
 - (b) Rs 50
 - (c) Rs 100
 - (d) Rs 10
84. If an economy produces GDP of Rs 30 billion per year with a capital stock of Rs 135 billion, then capital output ratio is a
- (a) stock variable with a value of Rs 4.5 billion
 - (b) stock variable with a value 4.5 years
 - (c) flow variable with a value of Rs 4.5 billion
 - (d) flow variable with a value of 4.5 as pure number
85. An economy has a proportionate income tax at the rate t , marginal propensity to consume of α and marginal propensity to import of m , with values $\alpha = 0.8$, $t = 0.2$, $m = 0.1$. The short-run investment multiplier of the economy will be
- (a) $1/[1 - \alpha(1 - t) + m] = 50/23$
 - (b) $1/[1 - (\alpha - m)(1 - t)] = 25/11$
 - (c) $1/[1 - \alpha(1 - t) - m] = 50/3$
 - (d) $1/[1 - \alpha + t + m] = 2$

86. The 'Sub-prime Lending' crisis was originated in

- (a) India
- (b) USA
- (c) UK
- (d) China

87. In the following statements, 'investment' is meant to be investment from a macroeconomic point of view. The following transactions (i), (ii) and (iii) have taken place in the economy :

- (i) Your family has taken out a mortgage from a bank and purchased a new house with the loan advanced to your family by the bank.
- (ii) You have used your salary to buy share of the Steel Authority of India Ltd.
- (iii) You draw money from your savings bank account of State Bank of India (SBI) and invest in SBI mutual fund share.

Indicate which combination of statements is correct

- (a) Transaction in (i) represents an act of net zero investment, transaction in (ii) represents an act of net positive saving, transaction in (iii) represents an act of net positive investment
- (b) Transaction in (i) represents an act of net positive investment, transaction in (ii) represents an act of net positive saving, transaction in (iii) represents an act of net positive saving
- (c) Transaction in (i) represents an act of net positive investment, transaction in (ii) represents an act of net investment, transaction in (iii) represents an act of saving
- (d) Transaction in (i) represents an act of net positive investment, transaction in (ii) represents an act of net positive saving, transaction in (iii) represents an act of net zero saving

88. The sum of the first n odd integers is

- (a) n^2
- (b) n^3
- (c) n
- (d) $4n$

89. Which of the following will be an inverse function of $f(x) = x^2$?

- (a) $g(y) = 1/y$
- (b) $g(y) = y^2$
- (c) $g(y) = \frac{1}{2}y$
- (d) There is no inverse function

90. The share of the primary sector in the Indian Labour Force in 2000 was approximately around .

- (a) 50 percent
- (b) 60 percent
- (c) 70 percent
- (d) 80 percent

91. The country with the largest external debt in the world today is

- (a) Brazil
- (b) Argentina
- (c) China
- (d) United States

92. The beginning of modern industry in India occurred in
- (a) the late 18th century
 - (b) the beginning of the 19th century
 - (c) the middle of the 19th century
 - (d) the turn of the 20th century
93. Market capitalization in the Bombay Stock Exchange (BSE) rose by 100 percent in a single year. This means that
- (a) the senserose rose by 100 percent during that year
 - (b) the value of shares traded at the BSE over the year increased by 100 percent when compared with the previous year
 - (c) the value of all outstanding shares of companies listed at the BSE rose by 100 percent
 - (d) the prices of every share listed at the BSE rose by 100 percent
94. Two events are said to be independent if
- (a) $\text{Prob}(A \text{ and } B) = \text{Prob}(A) \cdot \text{Prob}(B)$
 - (b) $\text{Prob}(A \text{ and } B) = \text{Prob}(A) + \text{Prob}(B)$
 - (c) $\text{Prob}(A/B) = \text{Prob}(A) - \text{Prob}(B)$
 - (d) $\text{Prob}(A/B) = \text{Prob}(A) - \text{Prob}(B) + \text{Prob}(A \text{ and } B)$
95. Which of the following is *not* a tool of monetary policy?
- (a) The tax rate
 - (b) The interest rate
 - (c) The cash-reserve ratio
 - (d) Open-market operations of the central bank

Read the following passage and answer the questions 96–100 :

"In the beginning, money was a commodity like any other, save that its physical characteristics allowed of its being divided into parts of varying but specific weight, and it had high enough worth in small enough bulk so that it could be readily carried around. Thus it served as an intermediate step in exchange, eliminating the inherent awkwardness of barter. And it was a convenient way of holding wealth—a storehouse of value.

But in major measure the separate identity of money, its personality, was discovered with the establishment of banks; through banks the supply of money could be increased or, on occasion, sharply diminished, and this, more or less at will. The funds thus made available could be used for investment, necessary or frivolous consumption or the needs of the State.

Together, the deposits and the banknotes were in excess of the value of the metal on which they were based. This, however, was entirely safe and acceptable for so long as everyone—original depositors, borrowers, noteholders—did not come at the same time for the hard money. Unless there were fear, panic or spreading rumour and unease about the competence and solidity of the bank—all by no means negligible possibilities—this would not happen.

Given the profits possible from this manufacture of money—the return in interest for an effortless act of lending—the temptation to overdo a quite wonderful thing was obvious. Out of temptation were born the central banks and much of the structure of modern bank regulation. In return for various privileges, including in latter times the exclusive right to issue notes, central banks came into existence. They then proceeded to regulate the lending and money creation of the lesser banks, which they did in an inconveniently disciplinary way by returning to the smaller banks their notes for payments in metal and by enforcing minimum levels of reserves against deposits."

(John Kenneth Galbraith, A History of Economics : The past as the present, Chapter 12)

96. Galbraith argues that

- (a) money was a commodity like any other until central banks were created
- (b) money was at first a commodity that could be easily divided by weight and carried around easily
- (c) the physical feature of money being something that can be carried around easily gives it a special personality
- (d) money can never be more than an intermediate feature in exchange

97. The presence of banks means that

- (a) money in circulation can be in excess of the supply of metal that is money
- (b) deposits in banks must always be equal to the notes issued by banks
- (c) money is always safe in banks and this is acceptable to all
- (d) banks are the basic storehouse of value

98. Central banks exist because

- (a) banks earn profits—in the form of a return in interest—from an effortless act of lending
- (b) the funds loaned out can be used for investment, necessary or frivolous consumption or the needs of the State
- (c) all banks want the exclusive power to issue notes
- (d) it is necessary to regulate the lending and money creation of lesser banks, given the temptation to overdo lending

99. Minimum levels of reserves against deposits

- (a) is a rule that money creation necessarily imposes on all banks
- (b) are necessary because depositors, borrowers and noteholders all come to banks at the same time for their money
- (c) are part of the regulatory actions of central banks
- (d) are returns for various privileges that are accorded to banks

100. The supply of money in an economy can be increased or decreased at will

- (a) because of the inherent awkwardness of barter
- (b) through the activities of banks
- (c) because money is a storehouse of value
- (d) since deposits and banknotes cannot be in excess of the metal on which they are based

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ENTRANCE EXAMINATION, 2009

M.A. ECONOMICS

[Field of Study Code : ECOM (179)]

Time Allowed : 3 hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

- (i) This question paper has *four* parts Parts—A, B, C and D.
- (ii) Part—A has 25 multiple-choice questions, each carrying 1 mark. All questions must be attempted. The questions of Part—A must be answered in Sheet—1 provided for the purpose by putting a circle around the correct answer, e.g., @. *Circling more than one letter or in between the letters will be treated as a wrong answer.*
- (iii) Part—B has 10 questions. Each question is of 5 marks. You are required to do any 6 questions.
- (iv) Part—C has 3 questions. Each question is of 10 marks. You are required to answer all 3 questions.
- (v) In Part—D, you are required to write an essay on any one of the given five topics. The essay is of 15 marks.
- (vi) The answers to all questions are to be given in the question paper in the appropriate space provided for each.

PART - A

Answer all questions. Each question carries 1 mark

- A1.** The essence of Engel's law is that as household incomes rise
- (a) the savings rate increases
 - (b) the proportion of income spent on food declines
 - (c) the expenditure on food declines
 - (d) the proportion of income spent on luxuries declines
 - (e) None of the above
- A2.** I had Rs 25 with me when I went to the market and I spent Rs 7 in all. What percentage of the total did I have at the end of my market visit?
- (a) 72 per cent
 - (b) 71.5 per cent
 - (c) 28 per cent
 - (d) 63.5 per cent
 - (e) None of the above
- A3.** A competitive firm has constant marginal cost of Rs 12 per unit of output. To maximise profit, it sells
- (a) 12 units of output
 - (b) any amount of output
 - (c) any amount of output provided the price per unit is Rs 12 or more
 - (d) any amount of output provided the average cost is increasing
 - (e) None of the above
- A4.** The dependency ratio is the ratio of
- (a) children to adults in the population
 - (b) unemployed to employed workers in the labour force
 - (c) foreign aid to total GNP
 - (d) non-working age-group population to working age-group population
 - (e) None of the above
- A5.** The capital-output ratio in an economy is the ratio of
- (a) a flow variable to a stock variable
 - (b) two flow variables
 - (c) two stock variables
 - (d) a stock variable to a flow variable
 - (e) None of the above

- A6.** The Gini coefficient provides a measure of
- (a) the level of poverty
 - (b) the level of relative inequality
 - (c) disguised unemployment
 - (d) the rate of growth
 - (e) None of the above
- A7.** The marginal propensity to consume is usually expressed as
- (a) a pure number
 - (b) paise per unit of time
 - (c) rupees per unit of time
 - (d) a number per unit of time
 - (e) None of the above
- A8.** Which of the following is a necessary and sufficient condition for consumers' equilibrium?
- (a) Marginal rate of substitution is equal to the price ratio
 - (b) Marginal rate of substitution is equal to the price ratio, if all goods are being purchased at equilibrium
 - (c) Marginal rate of substitution is equal to the price ratio, provided marginal rate of substitution is diminishing
 - (d) Marginal utilities are equal to prices
 - (e) None of the above
- A9.** During the Great Depression
- (a) unemployment and prices increased, and output decreased
 - (b) unemployment increased, and output and prices decreased
 - (c) unemployment and prices decreased, and output increased
 - (d) unemployment and output decreased, and prices increased
 - (e) unemployment and output increased, and prices decreased
- A10.** Suppose two fair, six-sided dice are rolled. The probability of obtaining a value from the first die that is equal to the value from the second die is
- (a) $1/6$
 - (b) $5/18$
 - (c) $9/12$
 - (d) $1/2$
 - (e) $1/12$

- A11.** Which of the following is not a leak from the circular flow of income/expenditure?
- (a) Taxes
 - (b) Transfers
 - (c) Net imports
 - (d) Savings
 - (e) None of the above
- A12.** CENVAT is related to
- (a) Sales tax
 - (b) Excise duty
 - (c) Customs duty
 - (d) Service tax
 - (e) None of the above
- A13.** According to official estimates, the proportion of people living below the poverty line in India is
- (a) below 15 per cent
 - (b) between 15 and 25 per cent
 - (c) between 25 and 35 per cent
 - (d) between 35 and 45 per cent
 - (e) above 45 per cent
- A14.** If $E(X^2) = 16$ and $\text{var}(X) = 4$, then $E[(2 + 3X)^2]$ is approximately equal to
- (a) 123
 - (b) 156
 - (c) 143
 - (d) 150
 - (e) None of the above
- A15.** GDP equals GNP, when
- (a) the value of exports of goods equals the value of imports of goods
 - (b) the value of exports less imports equals the net flow of invisibles into the country
 - (c) the value of exports of goods and services equals the value of imports of goods and services
 - (d) there are no net factor incomes from abroad
 - (e) None of the above

- A16.** The relationship between the stock of money and the stock of high-powered money is
- (a) determined solely by the reserve-deposit ratio
 - (b) determined solely by the currency-deposit ratio
 - (c) between zero and one
 - (d) the money multiplier
 - (e) the income velocity of money
- A17.** GDP does not include
- (a) government spending to clean up pollution caused by factories
 - (b) payments to technical consultants abroad
 - (c) additions to inventory stocks of intermediate goods
 - (d) additions to inventory stocks of final goods
 - (e) None of the above
- A18.** The elasticity of a variable X with a variable Y is a constant. Therefore
- (a) X is a linear function of Y
 - (b) X is a linear function of $\ln Y$
 - (c) $\ln X$ is a linear function of Y
 - (d) $\ln X$ is a linear function of $\ln Y$
 - (e) None of the above
- A19.** Suppose only a single firm has the technology to produce a commodity for which the demand curve is perfectly elastic. Total variable cost of the firm increases more than proportionally with firm output. Which of the following conditions must necessarily be true for the firm at equilibrium?
- (a) Average revenue = Marginal cost
 - (b) Average revenue > Marginal cost
 - (c) Average revenue > Average cost
 - (d) Average revenue > Marginal revenue
 - (e) None of the above
- A20.** A student discovers that the marks she has obtained (63 out of 100) in a recent test was the 73rd percentile in the frequency distribution of test scores. Suppose 1000 students wrote the test. This means that
- (a) at least 73 per cent of the students got 73 or more
 - (b) at least 270 students got 63 or more
 - (c) at least 270 students got 63 or less
 - (d) at least 27 per cent of the students got 73 or more
 - (e) None of the above

- A21.** An investment is worth-making, if over the lifetime of the project
- (a) cash inflows are positive
 - (b) net cash inflows (inflows minus outflows) are positive
 - (c) cash inflows discounted by an appropriate rate of interest are positive
 - (d) net cash inflows (inflows minus outflows) discounted by an appropriate rate of interest are positive
 - (e) None of the above
- A22.** The acceleration principle states that the rate of investment in the economy is proportional to
- (a) the rate of increase in aggregate demand
 - (b) the rate of increase in unplanned inventories
 - (c) the rate of increase in business savings
 - (d) the rate of increase in the rate of profit
 - (e) None of the above
- A23.** The Marshall-Lerner conditions relate to the effect on the balance of trade of
- (a) deflation
 - (b) deindustrialisation
 - (c) depression
 - (d) devaluation
 - (e) None of the above
- A24.** Suppose a market demand curve for an individual is given by $q = 100 - p$. The market price prevailing is 50. The supplier of the units is a monopolist and wants to perform first-degree price discrimination. He will then
- (a) charge a price of 50 for all units
 - (b) charge a price of 60 for the first 25 units and a price of 50 for the rest
 - (c) charge a price of 1250 per unit
 - (d) set up a two-part tariff in pricing and charge the consumer a flat fee of 1250 and a price of 50 per unit
 - (e) set up a two-part tariff in pricing and charge the consumer a flat fee of 1250 and a price of 60 per unit
- A25.** The production function $Q = x_1^{1/2} x_2^{1/3}$, where Q is output and x_1, x_2 are quantities of inputs, reflects
- (a) constant returns to scale
 - (b) increasing returns to scale
 - (c) decreasing returns to scale
 - (d) no returns to scale
 - (e) None of the above

PART—B

This Part has ten questions. Each question is of 5 marks.
You are required to do any six questions

- B1.** If the short-run average cost for a firm is given by $(Q - 15)2 + 4$, where Q stands for units of output, then compute the level of output at which short-run marginal cost is equal to average cost.
- B2.** Does the following maximisation problem have a solution?
Maximise x^2 subject to $0 < x < 1$
Explain your answer.
- B3.** In a two-good economy, the utility function is given by $U(x, y) = \min\{x, y\}$. The prices of both x and y are Re 1 per unit. The consumer has a budget of Rs 100. What is his optimum consumption bundle?
- B4.** Consider an economy operating at less than full employment, in which the government has a balanced budget. The marginal propensity to consume is 0.8 and the GDP falls short of full employment output by 5000.
(a) What is the minimum required increase in government spending that could bring about full employment in a closed economy?
(b) How would this change in an open economy if exports are constant and the economy has an import propensity of 0.2?
- B5.** Construct an example to prove that the following argument is incorrect :
 A and B are two non-empty sets of positive integers.
If B contains a number, then A contains the same number.
 B does not contain the number 2.
Therefore, A does not contain the number 2.
- B6.** In a closed economy in which the GDP is growing at 7 per cent per annum and the population at 2 per cent per annum, the income elasticity of demand for food is 0.4. If food prices are determined by demand and supply, at what rate must food supply increase, if the price of food is to remain constant?
- B7.** In an economy with only two goods X and Y , the price of X increased from 1 in period 1 to 1.5 in period 2, while that of Y remained constant at 1. Consumer A consumed 2 units of X and 3 units of Y in period 1, and 3 units of X and 2 units of Y in period 2. Consumer B consumed 3 units of X and 2 units of Y in period 1, and 1 unit of X and 3 units of Y in period 2. Assuming that tastes of these two individuals have not changed, which individual is clearly better off in period 2 compared to period 1?

B8. Consider the following components of the balance of payments :

- Merchandise trade account
- Invisibles account
- Capital account

State the category to which each of the following transactions belongs (Write 'None of the above' if none of the above accounts is applicable) :

Import of chocolate

Export of software

Change in official reserves

External commercial borrowing

Tourism abroad

Royalty payments for technology

Unilateral transfers in the form of workers' remittances

Import of capital equipment

Purchase of foreign securities

Loans from the World Bank

B9. If a and b are two positive numbers, define their arithmetic mean and their geometric mean. Prove that the arithmetic mean cannot be less than the geometric mean.

B10. A 10 kg basket of Royal Delicious Grade A apples sells for \$ 15 in the US, and the same apples are priced in India at Rs 100 per kg. The nominal exchange rate is Rs 50 per US dollar.

- (a) What is the real exchange rate based on apples alone?
- (b) Comment on using the above real exchange rate as an indicator of Purchasing Power Parity.

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PART—C

This Part has **three** questions. Each question carries 10 marks.
You are required to answer **all** questions

C1. Consider the following passage :

"One of the things which we have learned—a general point which must be emphasized at the outset—is to distinguish between those historical questions which can be usefully discussed in terms of the notion of statistical uniformity and those which cannot. Every historical event has some aspect in which it is unique, but nearly always there are other aspects in which it is a member of a group, often of quite a large group. If it is one of the latter aspects in which we are interested, it will be the group, not the individual, on which we shall fix our attention; it will be the average, or norm, of the group which is what we shall be trying to explain. ...Economics is rather specially concerned with such statistical behaviour.

The historical phenomena to which a theory of history might apply are those which, in the light of our interest in them, can be regarded as having this statistical character. Most of the phenomena of economic history (however widely considered) do have it; the questions we want to ask about economic history deal mainly with groupings that can be made to possess it. But the distinction is not, in principle, a distinction between economics and other kinds of history. The distinction is between an interest in general phenomena and an interest in particular stories. Whenever our interest is in general phenomena, theory (economic or other social theory) may be relevant; otherwise usually not."—*J. R. Hicks*

- (a) How many attributes of historical events does Hicks identify?
- (b) What is the fundamental basis of distinction between these attributes?
- (c) What is the reason for making this distinction?
- (d) According to Hicks, what feature do most phenomena of economic history have?
- (e) According to Hicks, when is theory relevant?

C2. Consider the following table with data on GDP by sectors :

	<i>Agriculture</i>		<i>Industry</i>		<i>Services</i>	
	At current prices	At constant prices	At current prices	At constant prices	At current prices	At constant prices
1990-91	151	340	111	215	253	529
1991-92	176	333	122	214	296	552
1992-93	198	355	143	221	341	582
1993-94	229	367	166	237	397	619
1994-95	264	385	203	262	458	655
1995-96	287	382	248	297	548	718
1996-97	345	420	280	320	635	768
1997-98	366	409	300	327	735	838
1998-99	420	435	332	338	863	905
1999-00	447	447	350	350	990	990
2000-01	450	445	392	373	1083	1046
2001-02	487	473	411	381	1200	1118
2002-03	472	439	463	407	1326	1202
2003-04	532	483	509	432	1497	1308
2004-05	552	482	598	468	1727	1437
2005-06	616	511	678	506	1982	1596
2006-07	695	530	790	560	2304	1774

- Between 1990-91 and 2006-07, which sector grew most rapidly and which most slowly in current price terms? Was it the same in constant price terms?
- How did the share of the agriculture and services in total GDP change between 1990-91 and 2006-07? Answer for both constant and current price terms.
- Was the growth of industry faster, slower or the same as that of aggregate GDP over the entire period?
- Calculate the implicit price deflator for agriculture in 2000-01 and for services in 2006-07.

- C3.** Consider an economy wherein equilibrium $Y = C + I - M$ and $C = 0.75Y$, where $M = 0.2C + 0.4I$ and I is autonomously determined.
- (a) What is the value of the investment multiplier in the economy?
 - (b) If the maximum value of imports of goods and services which the economy can finance is 60000 units of the economy's currency, what is the maximum value of Y possible in such an equilibrium?
 - (c) Suppose the economy can finance an additional 1 currency unit of imports. What is the increase in the maximum possible value of Y ?

PART—D

Write an essay on *any one* of the following topics.
The essay carries 15 marks

- (a) Is it correct to argue that the current global financial crisis was caused by financial deregulation?
- (b) Under what conditions can high aggregate income growth be accompanied by increased poverty?
- (c) Is labour market inflexibility responsible for slow industrial growth in India?
- (d) What factors explain the recent rise and decline in global food prices?
- (e) What are the assumptions and the basic propositions made in the Lewis two-sector growth model?

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ENTRANCE EXAMINATION, 2008

M.A. ECONOMICS

Time Allowed : 3 hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

- (i) This question paper has *three* Sections.
- (ii) Section—A has 30 multiple-choice questions of 1 mark each, all of which must be attempted. Answer by putting a circle around the letter before the chosen alternative, e.g., (A). *Any ambiguous marks (such as circling more than one letter or between two letters) will be treated as a wrong answer.*
- (iii) Section—B has 10 multiple-choice questions of 3 marks each, all of which must be attempted. Answer by putting a circle around the letter before the chosen alternative, e.g., (A). *Any ambiguous marks (such as circling more than one letter or between two letters) will be treated as a wrong answer.*
- (iv) Section—C contains 6 problems of which any 4 must be answered in the space provided. Each problem carries 10 marks.
- (v) The answers to all questions are to be given in the question paper itself in the appropriate space provided for each.

SECTION—A

Answer **all** questions. Each question carries 1 mark

- A1.** Among twenty-five articles, nine are defective, six having only minor defects and three having major defects. Determine the probability that an article selected at random has major defects given that it has defects.
- (a) $1/3$
 - (b) $1/4$
 - (c) $6/25$
 - (d) $2/25$
 - (e) None of the above
- A2.** A standard normal distribution has
- (a) mean equal to 1 and variance equal to 1
 - (b) mean equal to 0 and variance equal to 1
 - (c) mean equal to 0 and standard deviation equal to 0
 - (d) mean equal to -1 and variance equal to 1
 - (e) None of the above
- A3.** In a given group, the correlation between height, measured in feet, and weight, measured in pounds, is +0.68. Which of the following would alter the value of r ?
- (a) If height is expressed in centimeters
 - (b) If weight is expressed in kilograms
 - (c) Both of the above will affect r
 - (d) Neither of the above changes will affect r
 - (e) None of the above
- A4.** If a worker's marginal product of labour is 6 units of the good per hour and the price of the good is Rs 5, what is the highest hourly wage that a firm can pay her?
- (a) Rs 11
 - (b) Re 1
 - (c) Rs 30
 - (d) Rs 6
 - (e) Rs 5
- A5.** The optimal point on the Production Possibility Frontier (PPF) depends on
- (a) Efficiency
 - (b) Preferences
 - (c) Feasibility
 - (d) All of the above
 - (e) None of the above

- A6.** Suppose a technological advance in toothpaste manufacturing reduces the cost of producing each tube by Re 1. What will be the effect on supply?
- (a) Quantity supplied will increase
 - (b) The supply curve will shift inward
 - (c) There will be no change in supply
 - (d) Demand will go down since there will be less toothpaste supplied
 - (e) The supply curve will shift outward
- A7.** Hari's total spending on grapes rises when the price falls from Rs 2/kg to Re 1/kg. What can we say about the price elasticity of his demand for grapes?
- (a) It is greater than 1
 - (b) It is less than 1
 - (c) It is equal to one
 - (d) All of the above
 - (e) None of the above
- A8.** Last year, Priya bought 6 pairs of shoes when her income was Rs 40,000. This year, her income is Rs 50,000, and she purchased 10 pairs of shoes. Priya
- (a) treats shoes as an inferior good
 - (b) treats shoes as a luxury good
 - (c) prefers shoes to boots
 - (d) has a price-inelastic demand for shoes
 - (e) has a price-elastic demand for shoes
- A9.** When an economist refers to the long-run, she is referring to
- (a) a length of time no shorter than 2 years
 - (b) a length of time no shorter than 1 month
 - (c) approximately the length of time such that all inputs remain fixed
 - (d) approximately the length of time such that all inputs are variable
 - (e) a marathon as opposed to a mile
- A10.** Aparna makes chocolates. If the total cost of 10 chocolates is Rs 10, and the total cost of 30 chocolates is Rs 20, what does this tell us about the marginal cost of producing the 31st chocolate?
- (a) It will be greater than Re 0.50
 - (b) It will be less than Re 0.50
 - (c) It will be exactly Re 0.50
 - (d) It will revert to Re 1
 - (e) Any of the above is possible

- A11.** India's current annual income per head of population (i.e., net national product per capita at factor cost), as given in the Economic Survey, 2008, is in the region of
- (a) Rs 16,000
 - (b) Rs 33,000
 - (c) Rs 22,000
 - (d) Rs 12,000
 - (e) Rs 40,000
- A12.** If X_1, X_2, \dots, X_n are non-negative real numbers, then
- (a) Arithmetic Mean < Geometric Mean
 - (b) Geometric Mean \leq Arithmetic Mean
 - (c) Arithmetic Mean = 0.5 (Geometric Mean)
 - (d) there is no fixed relationship between Arithmetic Mean and Geometric Mean
 - (e) None of the above
- A13.** If $(a/b) > (b/c)$, then
- (a) $ac > b^2$
 - (b) $ac < b^2$
 - (c) $ac = b^2$
 - (d) No inference can be made regarding the relative magnitude of ac and b^2
 - (e) None of the above
- A14.** Let $f(x) = (\log(x))/x$, where $0 < x < 1$. Then for all x such that $0 < x < 1$
- (a) $f'(x) < 0$
 - (b) $f'(x) > 0$
 - (c) $f'(x) > 0$, if $0 < x < 0.5$ and $f'(x) < 0$, if $0.5 \leq x < 1$
 - (d) can't say anything about the sign of $f'(x)$
 - (e) None of the above
- A15.** Given two numbers, $a = (3\sqrt{7} + 4\sqrt{7})^2$ and $b = 343$, which of the following must be true?
- (a) $a > b$
 - (b) $b > a$
 - (c) $a = b$
 - (d) $a = b/2$
 - (e) None of the above

- A16.** Beena's average score after 8 class tests is 84. In her first seven class tests Beena's average score was 85. In her last class test Beena has scored
- (a) 82
 - (b) 87
 - (c) 96
 - (d) 77
 - (e) None of the above
- A17.** The 'Sub-Prime Lending' crisis originated in
- (a) India
 - (b) USA
 - (c) UK
 - (d) Australia
 - (e) None of the above
- A18.** A fair die has given the number 6 on five consecutive throws. What is the probability that the next throw will also give the number 6?
- (a) 0
 - (b) $1/30$
 - (c) $1/6$
 - (d) $5/6$
 - (e) None of the above
- A19.** The number $0.999999\dots$ is
- (a) exactly equal to 1
 - (b) slightly less than 1
 - (c) slightly more than 1
 - (d) All of the above
 - (e) None of the above
- A20.** Let $S = 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \dots$. Then S is equal to
- (a) 2
 - (b) 4
 - (c) 6
 - (d) 1
 - (e) The sum does not converge to any finite value

- A21.** Suppose A , B and C are three non-empty sets such that $B \subset C$ and $(C - A) \cap B = \phi$. Which of the following statements is then necessarily true?
- (a) $A \subset C$
 - (b) $B \subset A$
 - (c) $(A \cup B) \subset C$
 - (d) $C \subset (A \cup B)$
 - (e) None of the above
- A22.** Suppose any one but the minimum of a set of 10 positive real numbers is replaced by a number which is greater than it. If the range of a set of numbers is taken as the measure of inequality amongst the numbers in that set then after replacement
- (a) inequality will increase
 - (b) inequality will decrease
 - (c) inequality cannot increase
 - (d) inequality cannot decrease
 - (e) None of the above
- A23.** If a riskless bond promises a fixed annual payment of Rs 35 in ~~1990~~ ¹⁹⁹¹ and the current market rate of interest is 7% per annum then the market value of the bond is
- (a) Rs 50
 - (b) Rs 500
 - (c) Rs 5000
 - (d) Rs 2450
 - (e) None of the above
- A24.** In W. Arthur Lewis' model of growth in a dual economy the rate of growth of the money wage rate in the modern sector is
- (a) zero
 - (b) constant
 - (c) equal to the rate of inflation
 - (d) determined by the rate of growth of the labour force
 - (e) None of the above
- A25.** If every unit increase in a variable X is associated with a half unit decrease in a variable Y , then the correlation coefficient between X and Y is
- (a) -1
 - (b) -0.5
 - (c) 0.5
 - (d) 1
 - (e) None of the above

- A26.** Suppose the utility function of a person is $U(x, y) = 16x + 13y$, where x and y are the quantities consumed of two commodities X and Y . If the unit price of X is Rs 13 and the unit price of Y is Rs 11, in equilibrium the household will choose a commodity bundle
- (a) containing only X
 - (b) containing only Y
 - (c) containing both X and Y
 - (d) containing at least some Y
 - (e) None of the above
- A27.** Over the last two years the US Dollar has been
- (a) appreciating with respect to other major currencies
 - (b) depreciating with respect to other major currencies
 - (c) showing no trend with respect to other major currencies
 - (d) All of the above
 - (e) None of the above
- A28.** The terms of trade for a country refers to
- (a) the ratio of its currency to other currencies
 - (b) the ratio of its export prices to import prices
 - (c) the ratio of the value of its exports to the value of its imports
 - (d) the ratio of its export production costs to import production costs
 - (e) None of the above
- A29.** If an individual deposits a sum of money in a bank, then the amount of additional credit that the banking system can create is
- (a) a fraction of that sum defined by the cash reserve ratio
 - (b) a fraction of that sum defined by the statutory liquidity ratio
 - (c) a multiple of that sum defined by the cash reserve ratio
 - (d) a multiple of that sum defined by the statutory liquidity ratio
 - (e) None of the above
- A30.** Which of the following constitutional amendments deals with the Panchayati Raj Institutions?
- (a) 43rd Amendment
 - (b) 73rd Amendment
 - (c) 86th Amendment
 - (d) 93rd Amendment
 - (e) 2nd Amendment

SECTION—B

Answer all questions. Each question carries 3 marks

- B1.** You are given the following data for a country. S and I refer to private savings and investment, G and T to government expenditure and Tax revenues, and X and M refer to Exports and Imports of goods and services :

Year	$X-M$	$G-T$	$S-I$
2005	150		150
2006		- 50	- 130
2007	-200	345	

The missing values in the table above are

- (a) $G-T = 0$, $X-M = -80$ and $S-I = 145$
(b) $G-T = 0$, $X-M = 80$ and $S-I = 145$
(c) $G-T = 80$, $X-M = 0$ and $S-I = 145$
(d) $G-T = 0$, $X-M = 80$ and $S-I = -145$
- B2.** A population consists of the numbers [2003, 1999, 2001, 1997, 2000, 2005, 1995]. The variance of the population is
(a) 11.6
(b) the mean deviation
(c) 10
(d) 2010
- B3.** Suppose Rs 1,00,000 are deposited in an account for five years at an interest rate of 10% per year, to be compounded annually. How much money would be there at the end of 5 years?
(a) Rs 1,61,051
(b) Rs 1,60,000
(c) Rs 1,51,051
(d) Rs 1,50,000
- B4.** If you integrate the function $f(x) = 1/x$ from 1 to 3, you get
(a) 0
(b) 2
(c) $\log 3$
(d) None of the above
- B5.** If $a < b + \epsilon$, for all $\epsilon > 0$, then
(a) $a < b$
(b) $a \leq b$
(c) $a > 0$
(d) Can't say anything from the given information

- B6.** A monopolist faces a demand curve $q(p) = 1/p$. He incurs a cost of Rs 3 per unit of output produced. There is no fixed cost. His optimal output choice is
- (a) 2
 - (b) 3
 - (c) 0
 - (d) No such optimal output exists
- B7.** Suppose aggregate income in an economy is equal to total wages plus total profits. 40% of all profits are saved. If the share of wages in aggregate income is 60% and the rate of saving in the economy is 0.25, the fraction of wages saved in the economy is
- (a) 0.09
 - (b) 0.15
 - (c) 0.16
 - (d) 0.24
- B8.** Suppose in an economy $Y = C + I$, $C = 500 + 0.8Y$, $I = 1000$, supply of money $M_s = 1000$, transaction demand for money $M_{DT} = 0.1Y$, speculative demand for money $M_{DS} = 1000 - 75r$, where r is the percentage rate of interest. What is the equilibrium value of r in the economy?
- (a) 0.05
 - (b) 0.1
 - (c) 5
 - (d) 10
- B9.** Suppose that the exchange rate of the Indian rupee appreciates by 10 per cent relative to the currencies of India's trading partners. Over the same period, inflation in India is 8 per cent compared to 3 per cent inflation in the trading partners. What is the change in India's real exchange rate?
- (a) 5 per cent appreciation
 - (b) 10 per cent appreciation
 - (c) 15 per cent appreciation
 - (d) 5 per cent depreciation
- B10.** A stratified sample of households is selected for a survey. The population is divided in two strata and 25 per cent of households in stratum A and 10 per cent of households in stratum B are selected through a process of random selection. Data collected in the survey show that the income of sample households are as follows :
- Stratum A* : 2000 ; 1000 ; 3000 ; 4000 ; 5000
Stratum B : 500 ; 100 ; 200 ; 300 ; 400 ; 100
- The average income of households in the population is
- (a) 1509
 - (b) 1650
 - (c) 950
 - (d) None of the above

SECTION—C

Answer any four questions. Each question carries 10 marks

C1. The following data are given for an economy for a particular year :

	Rs (in crores)
GDP at Factor Cost	10,000
Net Factor Income from Abroad	500
Net Indirect Taxes	1,500
Government (Non-Investment) Expenditure at Market Prices	1,500
Current Account Deficit on Balance of Payments	500
Gross Savings of Government	-300

- (a) Calculate GDP at market prices. 1
- (b) Calculate GNP at market prices. 1
- (c) If private consumption expenditure is 0.75 times the GNP at market prices, calculate Gross Investment. 2
- (d) Calculate Gross Savings in the economy. 2
- (e) Calculate Gross Private Savings in the economy. 2
- (f) Calculate the private sector's savings ratio out of its disposable income. 2

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C2. Consider the following text :

"The main point is that technical change and capital accumulation go hand in hand, and it is not really possible to isolate the effects of increased knowledge or ability or know-how from the effect of accumulation of capital. Nor is it possible to distinguish, in general, the technical change which is the result of some brand new discovery from that which merely represents an increase in know-how in the ability to use and exploit knowledge which has already existed, in some shape or another, in the minds of some people. Further, just as technical progress causes accumulation, the process of accumulation stimulates the growth of knowledge and of know-how. Hence it is useless to analyse the effects of capital accumulation in terms of production function which assumes a given state of knowledge, and then assumes that this function continually shifts upwards with the progress of knowledge." (Nicholas Kaldor)

Based on this text answer the following :

- (a) What are the types of technical change that the author mentions here?
- (b) What is the relationship between technical change and capital accumulation?
- (c) Can the effects of technical change be clearly distinguished from the effect of capital accumulation?
- (d) What kind of production function does the author feel is *not* useful in analyzing the effects of capital accumulation?
- (e) Why is such a production function not useful in this way, according to the author?

- C3.** There were four candidates, namely, A , B , C and D , for an award.
- (i) Only one of the four candidates had a distinction both in Mathematics and Literature.
 - (ii) Only one candidate had a distinction both in Mathematics and Philosophy.
 - (iii) Only one candidate had a distinction both in Mathematics and History.
 - (iv) Only one candidate had a distinction both in Literature and Philosophy.
 - (v) Only one candidate had a distinction both in Literature and History.
 - (vi) Only one candidate had a distinction both in Philosophy and History.
 - (vii) Both A and B had a distinction in Mathematics.
 - (viii) Both C and D had a distinction in Literature.
 - (ix) Both B and C had a distinction in Philosophy.
 - (x) D had a distinction in History.

The award was given to the candidate who had distinction in more subjects than any other candidate. Which candidate was given the award? (Show the steps of your answer.)

- C4.** A chocolate bar has been stolen by either child A or child B . One of A and B is innocent. Here are the statements of witnesses and other interested parties

- C : A has not stolen the chocolate bar.
- D : A has stolen things in the past.
- E : B has stolen things in the past.
- F : E has stolen things in the past.
- G : D and E are both right.
- H : D and F are both right.
- I : E or F is right, and may be both.
- J : G or H is right, and may be both.
- K : D and I are both right.
- L : J is right and K is wrong.

Suppose that C and L are either both telling the truth or both lying.

Who stole the chocolate bar? (Show the steps of your answer.)

- C5.** One of A , B , C and D has committed a crime with the help of another one of them. Here are the statements given by the four individuals. The statements of the criminal and his accomplice are false and those of the remaining two are true.
- A : If B is guilty of something, then C must be innocent.
 - B : If A is innocent, then C must be guilty.
 - C : If B was the killer, then D must have had nothing to do with the crime.
 - D : I am innocent.

Which of the four is the criminal and who was his accomplice? (Show the steps of your answer.)

- C6.** Show that $\log(x) < x$ for all $x > 0$. Here $\log(x)$ stands for natural logarithm.

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ENTRANCE EXAMINATION, 2007

M.A. ECONOMICS

Time Allowed : 3 hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

- (i) This question paper has *four* Sections.
- (ii) Section—A has 25 multiple-choice questions of 1 mark each, all of which must be attempted. Answer by putting a circle around the letter before the chosen alternative, e.g., (A). *Any ambiguous marks (such as circling more than one letter or between two letters) will be treated as a wrong answer.*
- (iii) Section—B has 11 problems of which any 9 problems must be answered in the space provided. Each problem carries 5 marks.
- (iv) Section—C contains 4 problems of which any 2 must be answered in the space provided. Each problem carries 10 marks.
- (v) Section—D contains a passage and a set of questions to be answered on the basis of this passage. Attempt all the questions in the space provided. This section carries a total of 10 marks.
- (vi) The answers to all questions are to be given in the question paper itself in the appropriate space provided for each.

SECTION—A

Answer **all** questions. Each question carries 1 mark

- A1.** If x, y are real numbers and it is known that $x \cdot y < 2$ (the product of x and y is less than 2), then it **MUST** be the case that
- (a) x, y are both less than 2
 - (b) x, y are both positive
 - (c) at least one of x and y is positive
 - (d) at least one of x and y is less than 2
- A2.** Let x, y and z be arbitrary real numbers. Then we must have
- (a) if $x > y$, then $x \cdot z > y \cdot z$
 - (b) if $x > y$, then $x - z > y - z$
 - (c) if $x > y$, then $x/z > y/z$
 - (d) if $x > y$, then $1/x > 1/y$
- A3.** Suppose n observations of a variable yield n different values with median m . Suppose the observations with the maximum value and the minimum value are omitted. The median of the remaining $n-2$ observations is
- (a) $> m$
 - (b) $\leq m$
 - (c) $< m$
 - (d) None of the above

- A26.** Suppose the utility function of a person is $U(x, y) = 16x + 13y$, where x and y are the quantities consumed of two commodities X and Y . If the unit price of X is Rs 13 and the unit price of Y is Rs 11, in equilibrium the household will choose a commodity bundle
- (a) containing only X
 - (b) containing only Y
 - (c) containing both X and Y
 - (d) containing at least some Y
 - (e) None of the above
- A27.** Over the last two years the US Dollar has been
- (a) appreciating with respect to other major currencies
 - (b) depreciating with respect to other major currencies
 - (c) showing no trend with respect to other major currencies
 - (d) All of the above
 - (e) None of the above
- A28.** The terms of trade for a country refers to
- (a) the ratio of its currency to other currencies
 - (b) the ratio of its export prices to import prices
 - (c) the ratio of the value of its exports to the value of its imports
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 - (e) None of the above
- A29.** If an individual deposits a sum of money in a bank, then the amount of additional credit that the banking system can create is
- (a) a fraction of that sum defined by the cash reserve ratio
 - (b) a fraction of that sum defined by the statutory liquidity ratio
 - (c) a multiple of that sum defined by the cash reserve ratio
 - (d) a multiple of that sum defined by the statutory liquidity ratio
 - (e) None of the above
- A30.** Which of the following constitutional amendments deals with the Panchayati Raj Institutions?
- (a) 43rd Amendment
 - (b) 73rd Amendment
 - (c) 86th Amendment
 - (d) 93rd Amendment
 - (e) 2nd Amendment

- A12.** The long-run cost function for a commodity sold in a perfectly competitive market is given by $C(q) = q^3 - 2q^2 + 2q$. The equilibrium price of the commodity in the long run is
- (a) 4
 - (b) 2
 - (c) 1
 - (d) 1/2
- A13.** Suppose a monopolist firm faces a demand curve given by $D(p) = 1 - p$, where p is the unit price of the firm's product in rupees. If the firm's output in short-run equilibrium is 0.1 unit, what is the marginal cost of the firm at the equilibrium level of output?
- (a) 0.8
 - (b) 0.9
 - (c) 1.0
 - (d) 1.1
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- A14.** Suppose that the nominal interest rate of an economy is 10 percent, the inflation rate 5 percent, and the tax rate from interest income 40 percent. The after-tax real rate of interest will be
- (a) 1 percent
 - (b) 2 percent
 - (c) 3 percent
 - (d) None of the above
- A15.** Mr. A uses his salary of Rs 2 lakhs of a month to buy AT&T shares to earn dividend. Mr. B borrows Rs 2 lakhs from the bank to buy a new machine to expand his business. Mr. C deposits his salary of Rs 2 lakhs of a month in a term deposit bank account to earn long-term interest. In *macroeconomics*, the actions of A, B and C will be characterized as
- (a) A : investment, B : investment, C : saving
 - (b) A : investment, B : investment, C : investment
 - (c) A : saving, B : investment, C : saving
 - (d) A : investment, B : saving, C : investment

- A12.** The long-run cost function for a commodity sold in a perfectly competitive market is given by $C(q) = q^3 - 2q^2 + 2q$. The equilibrium price of the commodity in the long run is
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 - (b) 2
 - (c) 1
 - (d) $1/2$
- A13.** Suppose a monopolist firm faces a demand curve given by $D(p) = 1 - p$, where p is the unit price of the firm's product in rupees. If the firm's output in short-run equilibrium is 0.1 unit, what is the marginal cost of the firm at the equilibrium level of output?
- (a) 0.8
 - (b) 0.9
 - (c) 1.0
 - (d) 1.1
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- (a) A : investment, B : investment, C : saving
 - (b) A : investment, B : investment, C : investment
 - (c) A : saving, B : investment, C : saving
 - (d) A : investment, B : saving, C : investment

- A16.** If the excess of private sector savings over investment in a year in an economy increases by Rs 700 crores, the net savings of the government sector in a year decreases by Rs 850 crores and the annual value of imports of goods and services increases by Rs 600 crores, what is the change in the annual value of exports of goods and services in the economy?
- (a) Increases by Rs 450 crores
 - (b) Increases by Rs 750 crores
 - (c) Decreases by Rs 450 crores
 - (d) Decreases by Rs 750 crores
- A17.** Suppose Japanese shareholders own 49% and Indian shareholders 51% of the shares of a firm producing automobiles in India. The profits earned by Japanese shareholders of the firm form
- (a) part of Indian GDP and part of Japanese GNP
 - (b) part of Indian GDP and part of Indian GNP
 - (c) part of Indian GNP and part of Japanese GNP
 - (d) None of the above
- A18.** In the IS-LM model of an economy, if the economy is in a liquidity trap and aggregate investment expenditure is unaffected by current income, a rise in government expenditure (other things remaining constant) would lead to a rise in the equilibrium value of
- (a) the demand for money
 - (b) the rate of interest
 - (c) aggregate savings
 - (d) aggregate investment

- A22.** Consider a closed controlled economy with unlimited supplies of labour in which the incremental capital-output ratio is 4 and the rate of population growth is 1.5% per annum. If the economy wants to attain a growth rate of per capita income of 6% per annum, what must be the savings rate (in percent) in the economy?
- (a) 24
 - (b) 27.5
 - (c) 30
 - (d) 36
- A23.** Which of these is used in calculating the human development index?
- (a) Level of income measured by per capita GDP
 - (b) Educational attainment measured by literacy and school attendance
 - (c) Condition of health measured by life expectancy
 - (d) All of the above
- A24.** In 2006–07, the National Rural Employment Guarantee Programme entitled
- (a) 100 days of employment to all rural families in 200 districts of India
 - (b) 100 days of employment to all adults in 200 districts of India
 - (c) 100 days of employment to all rural families in India
 - (d) 100 days of employment to all adults in India
- A25.** Savings rate in India is
- (a) about 10 percent
 - (b) about 30 percent
 - (c) about 50 percent
 - (d) about 70 percent

- A19.** In an economy where all commodities are produced with labour alone, 0.5 unit of labour is required to produce a unit of commodity A and 1.0 unit of labour is required to produce a unit of commodity B. If the international price of B is 2.5 units of A (and unaffected by how much the economy trades), and if the total amount of labour in the economy is 100 units, how much of the commodities will the economy produce?
- (a) 200 units of A, 0 unit of B
 - (b) 57.14 units of A, 71.04 units of B
 - (c) 57.14 units of B, 71.04 units of A
 - (d) 0 unit of A, 100 units of B
- A20.** Which of the following is true for the government budget?
- (a) The revenue deficit is always less than the budget deficit
 - (b) The revenue deficit is always less than or equal to the budget deficit
 - (c) The revenue deficit is always greater than or equal to the budget deficit
 - (d) None of the above
- A21.** The Value Added Tax is .
- (a) a direct tax
 - (b) an indirect tax
 - (c) a partly direct and partly indirect tax
 - (d) a new type of tax, neither direct nor indirect

SECTION—B

Answer any nine questions. Each question carries 5 marks

- B1.** Sketch a graph of the function $y = f(x) = \log_e x$ in the interval $[1, 2]$. Find the value of $z > 0$ such that $f'(z) = \log_e 2$ (the prime denotes a derivative, as usual). Prove that z is in the interval $[1, 2]$.
- B2.** (a) Suppose Rs 1,00,000 is deposited in an account for 3 years at 11% rate of interest per year, compounded annually. How much money would be there at the end of 3 years?
 (b) Suppose that the market rate of interest is 11% per annum. Which of the following two options would you prefer?
 Option I : You receive Rs 111 after one year.
 Option II : You receive Rs 55 after six months and Rs 55 after one year.
- B3.** A computer has two processors. The probability that processor one works is $3/4$ and the probability that processor two works is $7/8$. The computer will function if processor one works, or processor two works or both processors work. Find the probability that processor one is working, given that the computer is functional.
- B4.** Let X be a random variable denoting the prison sentence (in years) for people convicted of car theft. Suppose that the maximum sentence for stealing a car is three years and that the probability density function of X is given by $f(x) = (1/9)x^2$. What is the expected prison sentence on being convicted for stealing a car?
- B5.** Let a consumer purchase the bundle $Q^0 = (q_1^0, \dots, q_n^0)$ at prices $p^0 = (p_1^0, \dots, p_n^0)$ and the bundle $Q^1 = (q_1^1, \dots, q_n^1)$ at prices $p^1 = (p_1^1, \dots, p_n^1)$. The following price index numbers may be defined :

$$P_L \text{ (Laspeyre)} = \frac{\sum_j p_j^1 q_j^0}{\sum_j p_j^0 q_j^0}; \quad P_p \text{ (Paasche)} = \frac{\sum_j p_j^1 q_j^1}{\sum_j p_j^0 q_j^1}$$

Let

$$Y = \frac{\sum_j p_j^1 q_j^1}{\sum_j p_j^0 q_j^0}$$

Now show that—

- (a) if $Y > P_L$, then the consumer is no-worse off at (p^1, Q^1) ;
 (b) if $Y < P_p$, then the consumer is no-better off at (p^1, Q^1) .

B6. In a competitive market, the demand and supply curves of a product are given by $q^d = 200 - p$ and $q^s = (1/2)p - 25$. There is an imposition of commodity tax of 30 per unit on the output. Calculate the pre-tax and the post-tax equilibrium price and output. Also find out the incidence of tax burden on consumer and producer per unit of output.

B7. Suppose there are 4 alternatives, x, y, z and w . Further suppose that there are 7 individuals, 1, 2, 3, 4, 5, 6 and 7. The individuals' rankings (orderings) of the four alternatives, $R_i, i = 1, \dots, 7$ are given by

$R_1 : (xy)zw$

$R_2 : yzwx$

$R_3 : zw(xy)$

$R_4 : (xy)(zw)$

$R_5 : yzwx$

$R_6 : zw(xy)$

$R_7 : (xy)(zw)$

Determine which of the alternatives are Pareto-optimal. Explain your answer.

[Notation : Alternatives inside the parentheses are indifferent to each other. If an alternative is written to the left of another alternative, then the former is preferred to the latter.]

B8. Suppose the money demand function of an economy is

$$\frac{M^d}{P} = 1000 - 100r$$

where M^d is the quantity of money demanded, P denotes the price level and r the rate of interest (in percentage). Let M denote the exogenously determined quantity of money in circulation.

- Find the equilibrium interest rate if $M = 1000, P = 2$.
- What happens to the equilibrium interest rate if the supply of money is raised from 1000 to 1200?
- If the Central Bank of the economy wants to raise the interest rate to 7 percent, what money supply should it set?

B9. In an economy where 20 percent of income is taxed, consumption is 75 percent of post-tax income. If the level of investment is 500 and government expenditure is 1100, then—

- what is the level of income;
- what is the budget deficit;
- what will be the level of income when with unchanged investment and tax-rate, government expenditure is such that the budget is balanced?

- B10.** Assume that the cost of a bottle of mineral water in India and the US reflects the relative cost of living in the two countries and increases at the same rate as the cost of living in the respective countries. The price of a bottle of mineral water in 2000 is reported as being Rs 30 in India and \$2 in the US. The exchange rate of the rupee in that year is reported to have averaged Rs 45 to the dollar. The inflation in the cost of living between 1991 and 2000 was 33.3 percent in the US and 50 percent in India. The exchange rate of the rupee in 1991 was Rs 20 to the dollar.

Would it be right to say that since the total inflation in the US during the decade was much lower than in India, a person regularly travelling from India to the US would find that country relatively less expensive to visit in 2000 as compared with 1991? Explain your answer.

- B11.** Consider an economy where the balance of payments in a particular year is characterised by the following (million dollars) :

Current Account Balance = -400

Capital Exports = 700

Imports = 800

Change in Reserves = -100

Net Invisible Receipts = 100

- (a) What is the value of exports from this economy?
(b) What is the value of capital inflow into the economy?

SECTION—C

Answer *any two* questions. Each question carries 10 marks

- C1.** A person consumes two goods x and y , and uses the utility function $U(x, y) = x + y$ to rank alternatives; it is given that the person's income is Rs 100 per week and that the price of good y is Rs 2 per unit. Compute the demand curve for good x under these conditions.

C2. Consider a closed macroeconomy of a year as described by the following equations and values :

$$Y = C + I + G$$

$$C = 250 + 0.75(Y - T)$$

$$I = 1000 - 50r$$

Y = National Income

C = Private Consumption Expenditure

T = Total Lump-sum Tax from Income = 1000

G = Government Consumption Expenditure = 1000

I = Investment Expenditure

r = Rate of Interest (in percentage)

- (a) If in equilibrium, $Y = 5000$, compute the equilibrium levels of private savings, public savings, total savings and the interest rate in the given economy.
- (b) Derive the equation for the product market equilibrium locus of Y and r (the $I-S$ curve) for the given economy.
- (c) How would your answers in (a) and (b) change if G was equal to 1250?

C3. There are four candidates for a scholarship : A , B , C and D .

- (i) Only one of the four candidates had first division both in Class X and Class XII.
- (ii) Only one candidate had first division both in Class X and B.A.
- (iii) Only one candidate had first division both in Class X and M.A.
- (iv) Only one candidate had first division both in Class XII and B.A.
- (v) Only one candidate had first division both in Class XII and M.A.
- (vi) Only one candidate had first division both in B.A. and M.A.
- (vii) Both A and B had first division in Class X.
- (viii) Both C and D had first division in Class XII.
- (ix) Both B and C had first division in B.A.
- (x) D had a first division in M.A.

The scholarship was awarded to the candidate who had first division in more examinations than any other. Which candidate was awarded the scholarship? Explain your answer.

C4. You are given the following information about the Indian Economy :

Year	Share of sector in GDP (percent)			Share of sector in workforce (percent)		
	Agriculture	Manufacturing	Services	Agriculture	Manufacturing	Services
1990	35	33	32	70	15	15
2005	20	32	48	66	12	22

- (a) Which sector registered the highest productivity (output per worker) in 1990 and which showed the lowest?
- (b) In what direction—rise, fall, or neither—did productivity change in these sectors over the period 1990 to 2005, and what change, if any, is seen in the ranking of the sectors by productivity comparing 2005 with 1990?
- (c) Explain the economic reasons for the observed trends in output, employment and productivity.

SECTION—D

Answer **all** the questions of **D1**. This section carries 10 marks

D1. "It is true, that, when an individual saves he increases his own wealth. But the conclusion that he also increases aggregate wealth fails to allow for the possibility that an act of individual saving may react on someone else's savings and hence on someone else's wealth... For although the amount of his own saving is unlikely to have any significant influence on his own income, the reactions of the amount of his consumption on the incomes of others makes it impossible for all individuals simultaneously to save any given sums. Every such attempt to save more by reducing consumption will so affect incomes that the attempt necessarily defeats itself. It is, of course, just as impossible for the community as a whole to save less than the amount of current investment, since the attempt to do so will necessarily raise incomes to a level at which the sums which individuals choose to save add up to a figure exactly equal to the amount of investment." (J. M. Keynes)

On the basis of the above passage, answer the following questions :

- (a) Can an individual increase his wealth by saving more?
- (b) Can an individual increase aggregate wealth by saving more? Explain your answer in not more than two sentences of your own.
- (c) What happens when the community as a whole decides to save less than the current investment?
- (d) Does an individual's decision to save more affect his own income?
- (e) Can all individuals end up with a higher aggregate saving by deciding simultaneously to consume less and save more?
- (f) Can all individuals end up with a lower aggregate saving by deciding simultaneously to consume more and save less?