JNU 2013 Answer Key

1. (d) (0,1)

2. (a) 3 rotis and 5 cups of dal

3. (a) 68

4. (a) 1000

5. (b) on only retailers if demand is completely elastic

6. (d) approximately the length of time such that all inputs are variable

7. (c) A negative correlation coefficient

8. (d) It may effectively regarded as zero if its P-value is below 0.01

9. (a) 1/3

10. (c) E, D, H, C, B

11. (a) A

12. (d) D, B

13. (a) At least two people are in the club

14. (a) A

15. (c) C

16. (d) U, V

17. (c) W

18. (a) Two

19. (d) At least three species went extinct after T

20. (d) Four

21. (d) R, S, T, U, V, W, X

22. (c) fell from 25 percent to 2 percent

23. (d) decreased from around 15 percent to around 8 percent

24. (a) Input-Output approach

25. (a) Rs. 50,00,050 crore

26. (b) 880

27. (b) subtracting the rate of inflation from the nominal interest rate

28. (d) 1400

29. (a) 1700

30. (a) 2.5

31. (c) the value of all outstanding shares of companies listed at the BSE rose by 100 percent

32. (c) a multiple of that sum defined by the cash reserve ratio

33. (a) exactly 3 percentage point

34. (a) a simple average of the stock prices of the top 500 companies by market capitalization

35. (d) Headcount poverty ratio

36. (a) ex ante savings are higher than ex ante investment

37. (b) rising prices and falling or stagnant output

38. (c) The nominal and real exchange rates will always vary according to capital flows

39. (a) less than 1 percent

40. (a) will have no effect on the balance of trade

41. (d) countries officially linked the value of their money to a specific weight of gold

42. (b) 25 percent

43. (b) (i) is false but (ii) is true

44. (a) a point

45. (b) the distribution of different possible values of a statistic together with their respective probabilities of occurrence

46. (c) Week 1 : Philosophy, Mathematics, Literature; Week 2 : Philosophy, Biology, Economics

47. (a) Philosophy, Biology and Economics

48. (a) Philosophy, Literature and Mathematics

49. (a) a flow variable

50. (b) a stock variable

51. (c) Rs. 55,125

52. (b) Standard Variation (X) = - 1

53. (b) 44/144

54. (d) Between 2.3 to 2.5

55. (d) Between 4750 to 5250

56. (c) increase by less than unity

57. (a) decrease by less than 1000

58. (c) the same as that in economy 2

59. (a) is defined over income and prices

60. (b) 2.5 percent

61. (b) from occurrence of B we can conclude that C has occurred

62. (c) The National Planning Commission

63. (c) All errors have expectation zero

64. (c) can help to explain differences in population density

65. (c) capital cannot be the cause of industrial development

66. (c) exist independently of human activities

67. (d) Land above ……..

68. (d) Even without a law relating to land acquisition, States can acquire land

69. (a) moved in favour of industry

70. (d) e times the population of species of A

71. (a) complements

72. (c) 0.25

73. (a) A large number of firms and freedom of entry and exit

74. (c) The ability to collude with respect to price

75. (c) The price elasticity of demand for this commodity is equal to 1 at any point on the demand curve

76. (a) |a| < b if and only if –b < a < b

77. (b) differentiable everywhere excluding the point '0'

78. (a) log y

79. (c) Probability {either A or B but not both} = p + q – 2r

80. (b) {x is a real number | $x \neq x$}

81. (b) n^m

82. (b) 24

83. (b) Q is true

84. (b) no P is R

85. (a) Some P are Q

86. (a) the trade deficit will necessarily decline

87. (a) only activities that result in products that are exchanged in markets

88. (a) measures to subside agricultural exports

89. (c) Rs. 10 per cent

90. (d) None of the above

91. (b) an indirect tax

92. (c) about 40 percent

93. (d) Gross Cropped Area:

This represents the total area sown once and/or more than once in a particular year, i.e. the area is counted as many times as there are sowings in a year.

500 hectares

94. (c) in the age-group of 6 to 14 years of age

95. (b) X_2

96. (b) X_2

97. (a) 4.76

98. (d) 5.26

99. (d) -5.26

100. (a) -4.76

JNU 2012 Answer Key

1. **(c) less than 2%**
2. **(a) has a mean 0 and a standard deviation of 1 (Reason: Read the assumption part of construction of Regression Equation)**
3. **(a) indicates a one-tailed test with a rejection area in the right tail (Reason: Rejection region is the right side of the alternative hypothesis)**
4. **(b) Increase (Reason: Since time deposits have become less liquid, people will hold more money for transactions)**
5. **(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. **(d) (4, 4) or (4, 0) or (-2, 2) (Reason: Two opposite sides are equal)**
7. **(a) The other corners are (1, 1, 0), (1, 0, 1), (0, 1, 1) and (1, 1, 1)**
8. **(d) None of the above**
9. **(a) The volume of the cube is 1**
10. **(b) The area of the cube is 6**
11. **(a) 0.10 (Reason: 3C+2C+0.4+0.1 = 1)**
12. **(d) 1.10 (Reason: $E(Y^2) = (-1)^2.3C + (0)^2.2C + (1)^2.(0.4) + (2)^2.(0.1)$)**
13. **(d) None of the above (Reason: Calculate E(2Y) and put the value in the equation)**
14. **Question is missing**
15. **(c) wages should rise and rents should fall in country A**
16. **(c) $2500 and 2000 computers**
17. **(b) 1600 computers, increase, decrease**
18. **(b) increase, decrease (Note: We are asked to compare quota situation with no trade situation)**
19. **(b) f '(x) > 0 (Note: f '(x)=$(x^2+logx)/x^4 > 0$)**
20. **(d) a=b (Note: a = 9.7 + 16.7 + 2.3.4.7 = 343 = b)**
21. **(d) None of the above (Note: S= $\pi^2/6$)**
22. **(a) S=G**
23. **(c) 4**
24. **(b) 2.5**
25. **(d) None of the above**

26. **(a) 0.5**
27. **(b) 1- (1- p_1)(1- p_2)(1- p_3) (Reason: P($A_1 \cup A_2 \cup A_3$)= P(A_1)+ P(A_2)+ P(A_3)+ P($A_1 \cap A_2 \cap A_3$)−P($A_1 \cap A_2$)−P($A_2 \cap A_3$)−P($A_1 \cap A_3$))**
28. **(c) 1/2 (Reason: P(Choosing PC)+P(Choosing M)=1 & P(Choosing PC)=P(Choosing M))**
29. **(c) Situation (i) is at least as likely as situation (ii)**
30. **(d) None of the above (Reason: For x = 0.1 , x > x^2)**

31. **(b) 72×10^{-5} (Note: $36 \times 10^{-3} \times 2 \times 10^{-2}$ = Answer)**

32. **(d) None of the above**

33. **(c) C's weight or E's weight**

34. **(b) the average of B's weight and E's weight**

35. **(b) 2**

36. **(c) greater than unity**

37. **(a) greater with replacement than without' replacement (Reason: P(WR)= $4^2/52^2$ > P(WOR)=$(4 \times 3)/(52 \times 51)$**

38. **(c) less than 1/16 (Reason: Required Prob. = $(13 \times 12)/(52 \times 51)$= 1/17 < 1/16)**

39. **(c) 76**

40. **(b) B**

41. **(d) 0**

42. **(b) Chemistry**

43. **(a) P**

44. **(b) hockey team**

45. **(a) A**

46. **(c) more output and has a lower price**

47. **(b) shorter than**

48. **(d) None of the above**

49. **(a) 11 5**

50. **(b) 6 (Reason: Use Arithmatic logics)**

51. **(c) 20 (Note : 7,17,27,37,47,57,67,70-79(Total: 11),87,97)**

52. **(b) 12 years (Reason: Now, their age is : x , y . Then $(x - 4) = 2(y - 4)$, ¾ $(x+4) = (y+4)$, solve x and y, then x = 12)**

53. **(d) 17 (Reason: Differences are like these 1,2,2,4,4,....)**

54. **(c) 10 meters (Ans : OA=4=OB , AC=3=BD , Now you need to calculate OC+OD , where OAC & OBD are Right-angle triangle, use pythagoras theorem to calculate OC & OD , OC = 5 = OD)**

55. **(d) None of the above (Answer: 47 days)**

56. **(b) x = 1.5, y=1.5**

57. **(a) x = 1, y = 2**

58. **(d) either x = 2, y = 1 or x = 1, y = 2**

59. **(b) Output y/2 is produced in plant 1 and output y/2 is produced in plant 2.**

60. **(a) y = 3**

61. **(d) None of the above**

62. **(a) $x_1 + x_2$**

63. **(c) x* = 0 or x* = 1 or f '(x*)=0**

64. **(c) To prove that f is not a function, it is necessary to demonstrate (i) or (ii)**

65. **(c) Demonstration of (i) and (ii) is sufficient to prove that f is not a function**

66. **(a) The range of the surjective function is always equal to its codomain**

67. (d) None of the above
68. (a) 0
69. (c) 4
70. (b) After two years
71. (b) After two years
72. (b) After two years
73. (a) Today
74. (a) Today
75. (a) Today
76. (b) 1980-85
77. (d) 1990-95
78. (c) 3
79. (a) 1
80. (d) The substitution effect is negative and there are no income effects
81. (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
82. (a) continuous at all points in the domain but not differentiable at some points in the domain
83. (c) At the optimum, the consumer should consume 50 units of commodity 1 and 50 units of commodity 2
84. (a) the optimum consumption of commodity 1 increases by 1/3 and the optimum consumption of commodity 2 increases by 1/3
85. (d) 0
86. (b) 25
87. (c) $x_1 = x_2$
88. (a) 4
89. (b) 2
90. (c) 4
91. (b) 6 (Assuming that the question asks you to determine the tax rate that implements purchase of exactly two cows that we found in Q.89)
92. (a) Rs. 10
93. (b) 0
94. (d) None of the above (Answer: $x^2 > 1$)
95. (a) -4
96. (a) f(x) has a minimum value but no maximum value
97. (b) 2
98. (b) climate change
99. (c) put hurdles in the way of poverty eradication
100.   (d) None of the above

JNU 2011 Answer Key

1. **(c) 5/18**
2. **(a) 44%**
3. **(a) $(x-z)^2 y$ is even**
4. **(a) (-1, 13)**
5. **(a) $x^2 - 2cx + (c^2 - b^2) = 0$**
6. **(a) $(-7, \infty)$**
7. **(c) $|a - b| \leq 2$**
8. **(b) 10**
9. **(a) straight lines**
10. **(c) 1/2**
11. **(d) None of the above**
12. **(b) 16.5**
13. **(d) 18**
14. **(d) 150**
15. **(d) 20%**
16. **(d) None of the above (aL* = 32000)**
17. **(b) 4 (Use: P = m(W/Y), W + R = PY, 1000 + 0.8W + 0.6R + I = PY and m = 4/3)**
18. **(a) 0.83 (approx.)**
19. **(d) 25%**
20. **(a) 0%**
21. **(c) 20% increase**
22. **(b) Increases by 1/8**
23. **(b) 9000**
24. **(d) None of the above**
25. **(c) 27**
26. **(a) Yes**
27. **(b) -1250**
28. **(a) 2.8**
29. **(a) 9%**
30. **(b) fall in the price of bread; fall in the price of apple**
31. **(d) $x_1 = 300$; $x_2 = 0$**
32. **(b) increasing returns to scale**
33. **(b) agricultural prices respond to changes in demand-supply balances faster than industrial prices**
34. **(d) the balance between saving and investment**
35. **(b) increases industrial costs of production**
36. **(c) can produce a rise in the general price level**
37. **(b) China is responsible for the highest total (but not per capita) emissions.**
38. **(b) Rs 600**

39. **(b) 2.5% per annum**
40. **(b) Dadabhai Naoroji**
41. **(c) better training of employees**
42. **(c) there exists an integer n ∋ P(n,m) is false for all integers m**
43. **(a) both X and Y are true**
44. **(b) X is false**
45. **(c) all X are Z, and all Y are W**
46. **(d) half**
47. **(d) None of the above**
48. **(d) None of the above**
49. **(d) No conclusion can be drawn on the basis of the given information**
50. **(c) Rs 1,36,763.1**
51. **(c) Expenditure on X will rise by 2.2%**
52. **(c) 3/4**
53. **(c) 1.37 ; 1.2731**
54. **(c) 900000**
55. **(d) Events E_1 and E_4 are mutually exclusive**
56. **(b) 1**
57. **(a) 5**
58. **(b) |x|**
59. **(c) m = 5**
60. **(d) log-normal distribution**
61. **(d) none of the above**
62. **(a) x < xy/2 < y**
63. **(b) 7**
64. **(c) do not intersect**
65. **(d) 0, 2 and 5**
66. **(b) log 2/log1.56**
67. **(c) 5500**
68. **(d) 0**
69. **(c) 1/216**
70. **(a) (-∞,-2)**
71. **(c) mean = 15, standard deviation = 1**
72. **(d) 5350**
73. **(c) 4536**
74. **(b) 952**
75. **(c) 12.30**
76. **(a) 2.60**
77. **(b) 3.99**
78. **(b) 7**

79. **(c) {y, z}**
80. **(a) there is under consumption in the free market**
81. **(b) A ≥ 25π**
82. **(d) -4, 4**
83. **(a) the liquid cash that banks have to maintain with the RBI a certain percentage of their demand and time deposits.**
84. **(c) equal to 1/3 (assuming independence is implicit)**
85. **(d) the fiscal deficit less the interest outgo in the budget**
86. **(c) increase in banking habit of the population**
87. **(b) Market demand = 2000 - 100p, if p < 20; and Market demand = 0, if p ≥ 20.**
88. **(c) 16 < p* < 17**
89. **(d) None of the above**
90. **(b) The numbers 1, 5, 7, 9 have a smaller standard deviation than the numbers 1231, 1235, 1237, 1239.**
91. **(d) D**
92. **(b) B**
93. **(b) B**
94. **(a) Rs 1,620**
95. **(c) the marginal cost curve above the average variable cost curve**
96. **(a) 12**
97. **(b) - p/q**
98. **(a) Tuesday**
99. **(b) Sociology**
100. **(a) Monday**

JNU 2010 Answer Key

1. (a) equal to 1
2. (b) rising prices and falling or stagnant output
3. (b) the opportunity cost of producing wheat is lower in Canada than in the US
4. (b) the policy of protecting a new domestic industry from lower cost imports
5. (b) it is possible to have real exchange rates that are different from one another
6. (a) always includes the balance on investment income
7. (b) because its consumption is non-rival and non-excludable
8. (a) less than 1 percent
9. (b) will cause the balance of trade to improve
10. (d) countries officially linked the value of their money to a specific weight of gold
11. (b) 7
12. (b) 7
13. (c) $\pi(20) > \pi(19)$
14. (b) 5
15. (d) 5
16. (a) incurs a loss of 15
17. (c) straight lines
18. (b) 10
19. (b) {(0,0),(0,1),(0,2),(0,3),(1,0),(1,1),(1,2),(2,0)}
20. (a) at the optimum, the consumer would consume more of both commodities
21. (a) he consumes 3 rotis and 5 cups of dal per day
22. (c) 45
23. (a) either (i) zero unit of x and 50 units of y or (ii) 50 units of x and zero unit of y
24. (b) increasing returns to scale and diminishing marginal product for factor K
25. (c) the marginal cost curve above the average variable cost curve
26. (b) Geometric Mean ≤ Arithmetic Mean
27. (d) Cannot say anything about relation between x, b and c
28. (b) f′(x) > 0
29. (c) x = y
30. (c) 77
31. (d) (0,1)
32. (b) whenever $4 \geq M > 0$ there are real values for a, b
33. (d) 50
34. (c) Rs 55,125
35. (a) – 0.5
36. (c) 63
37. (d) $(n-1)!/n^{n-1}$
38. (b) 1/6
39. (b) exactly equal to 1 (Note: 0.9+0.09+0.009+.... = 0.9/(1 - 0.1)=1)

40. **(d) the sum S does not converge to any finite value**

41. **(c) A rule that assigns to each person in a classroom his or her height**

42. **Calculate Yourself**

43. **Calculate Yourself**

44. **Calculate Yourself**

45. **(b) All distributions are Pareto-optimal**

46. **(b) The electrician works on Friday**

47. **(c) In case the carpenter and the electrician may work on consecutive days**

48. **(d) The carpenter will work on Wednesday and the plumber on Thursday**

49. **(b) Order all your legs from the second boy**

50. **(b) log3**

51. **(b) x ≤ y**

52. **(a) flow variable**

53. **(b) a stock variable**

54. **(d) 1100**

55. **(a) 1000**

56. **(b) Rs 2,100**

57. **(d) 6.4**

58. **(c) Between 2.3 and 2.5**

59. **(d) Between 4750 and 5250**

60. **(c) increase by less than unity**

61. **(a) decrease by less than 1000**

62. **(c) Week 1 : Philosophy, Mathematics, Literature; Week 2 : Philosophy, Biology, Economics**

63. **(a) Philosophy, Biology and Economics**

64. **(a) Philosophy, Literature and Mathematics**

65. **(b) (x-y)(y-z)**

66. **(d) all Z are X, and all Y are W**

67. **(c) X is true, but Y is false**

68. **(d) both X and Z are false**

69. **(a) Show that some statements Z implies Y, and then show that X implies Z**

70. **(c) Let n be an arbitrary integer. Then find an integer m possibly depending on n such that P(n,m) is true.**

71. **(d) if Y is false, then X is false**

72. **(d) None of the above**

73. **(d) corn (Note: The two agricultural products exported the most by USA are corn and soybeans)**

74. **(b) the autarky equilibrium**

75. **(b) equilibrium attained with the maximum gains from specification and trade**

76. **(c) Does not depend on expectations and has the dimension of time**

77. **(c) the economy will always grow at 3% rate of growth**
78. **(a) 72**
79. **(a) Elinor Ostrom and Oliver Williamson**
80. **(d) There is no minimum number in set A**
81. **(d) China**
82. **(a) The primary sector of the Indian Economy is 50% of the GDP**
83. **(a) Rs 40**
84. **(d) flow variable with a value of 4.5 as pure number**
85. **(a) $1/[1 - \alpha(1 - t)+m]= 50/23$**
86. **(b) USA**
87. **(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. **(a) n^2**
89. **(d) There is no inverse person**
90. **(c) 70 percent**
91. **(d) United States**
92. **(c) the middle of the 19th century**
93. **(c) the value of all outstanding shares of companies listed at the BSE rose by 100 percent**
94. **(a) Prob(A and B) = Prob(A).Prob(B)**
95. **(a) The tax rate**
96. **(a) money was a commodity like any other until central banks were created**
97. **(a) money in circulation can be in excess of the supply of metal that is money**
98. **(d) It is necessary to regulate the lending and money creation of leesser banks, given the temptation to overdo lending**
99. **(c) are part of the regulatory actions of central banks**

100. **(b) through the activities of banks**

JNU 2009 Answer Key

A1. (b) the proportion of income spent on food declines.

Engel's law says that proportion of income spent on food declines, although the expenditure may   increase.

M= 1000, proportion on food = say 40% , then 400 is spent on food

M= 2000, proportion on food = 30% , then 600 is spent on food.

So its not necessary that expenditure on food declines.

The proportion declines.

A2. (a) 72 %

A3. (c) any amount of output provided the price per unit is Rs 12 or more

A4. (d) non-working age-group population to working age group population

A5. (d) a stock variable to a flow variable. (θ = K/Y = Stock/ Flow)

A6. (b) the level of relative inequality

A7. (a) a pure number

A8. (e) none of the above (Its e because it rules out the preferences like concave and perfect complements & in these cases , MRS isn't equal to price ratio).

A9. (b) unemployment increased, and output and prices decreased

A10. (a) 1/6

A11. (b) Transfers (Imports , savings and taxes are the only leakages . Transfers are not)

A12. (b) Excise duty

A13. (b) between 15 and 25 %

A14. (e) none of the above

A15. (d) there are no net factor incomes from abroad

A16. (d) the money multiplier

A17. (b) payments to technical consultants abroad

A18. (d) lnX is a linear function of lnY

A19.

A20. (e) none of the above. (If we make the normal distribution curve, then P_{73}= 63 => area to the left of P73=0.73

And area to the right is 0.27 . This implies that 270 students got 63 or more marks.)

A21.

A22. (a) the rate of increase in aggregate demand

A23. (d)devaluation

A24. (c) charge a price of 1250 per unit

A25. (c) decreasing returns to scale

JNU 2008 Answer Key

A1. A

A2. B

A3. D

A4. C

A5. D

A6. E

(Whenever there is technological advancement , it reduces the cost of production and each price more quantity is supplied. So the supply curve shifts to right . And , demand remaining the same, P will decrease and Q will increase.)

A7. A

A8. B

A9. D

A10. C

A11.

A12. B

A13. D

A14. B

A15. C

A16. D

A17. B

A18. C

A19. A

A20. E

A21. C

A22. B

A23. B

A24. D

A25. A

A26. A

(The slope of ICs is 16/ 13 = 1.23

and slope of budget line is 13/11 = 1.18

slope of budget line< slope of IC . utility is maximized by consuming only x.)

A27.

A28. B

A29. C

A30. B

SECTION B

1. a

2. c

3. a

4. c

5. d

6. d

7. b

8. d

9. a

10. Calculate Yourself.

JNU 2007 Answer Key

Q. 12. Inverse demand function: p= 1-q

       TR :p*q=q-q^2

       MR=1-2q

       here q = 0.1 so MR = 0.8

       at profit maximizing condition MR=MC

       so MC = 0.8

Price = 1

Q. 21. Indirect tax

Q.22. Incremental capital output ratio(ICOR) = dK/dY = 4 Population growth rate = dN/N = 0.015 Growth rate of per capita income = dY/Y - dN/N = 0.06 Growth rate of income = dY/Y = 0.075 Now in equilibrium Savings becomes Capital, so saving rate = S/Y= dK/Y Using ICOR above,
(dK/Y)/(dY/Y) = 4 dK/Y = 4dY/Y = 0.3 i.e. 30%