

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

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) (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.**

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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
