PUMDET–2017

Subject : Applied Economics

Time Allowed : 1hour 30 minutes. *Maximum Marks* : 100

Booklet No. 20360049

INSTRUCTIONS

Candidates should read the following instructions carefully before answering the questions:

1. This question paper contains **50** MCQ type objective questions. Each question has four answer options given, viz. A, B, C and D.
2. Only one answer is correct. Correct answer will fetch **full** marks 2. Incorrect answer or any combinations of more than one answer will fetch – ½ mark. No answer will fetch 0 mark.
3. Questions must be answered on OMR sheet by darkening the appropriate bubble marked A, B, C, or D.
4. Use only **Black/Blue ball point pen** to mark the answer by complete filling up of the respective bubbles.
5. Mark the answers only in the space provided. Do not make any stray mark on the OMR.
6. Write question booklet number and your roll number carefully in the specified locations of the **OMR**. Also fill appropriate bubbles.
7. Write your name (in block letter), name of the examination centre and put your **full** signature in appropriate boxes in the OMR.
8. The **OMR**s will be processed by electronic means. Hence it is liable to become invalid if there is any mistake in the quesions booklet number or roll number entered or if there is any mistake in filling corresponding bubbles. Also it may become invalid if there is any discrepancy in the name of the candidate, name of the examination centre or signature of the candidate vis-a-vis what is given in the candidate's admit card. The **OMR** may also become invalid due to folding or putting stray marks on it or any damage to it. the consequence of such invalidation due to incorrect marking or careless handling by the candidate will be sole responsibility of candidate.
9. Rough work must be done on the question paper it self. Additional blank pages are given in the question paper for rough work.
10. Hand over the OMR to the invigilator before leaving the Examination Hall.

1. If $L(x) = ax^p + bx^q$ is a Lorenz function for a given income distribution, where a, b, p and q are real numbers, then the restrictions on L (.) are as follows:

(A) $a + b < 1$ and $p, q > 1$

(B) $a + b > 1$ and $p, q > 1$

(C) $a + b = 1$ and $p, q > 1$

(D) $a + b = 1$ and $p, q < 1$

2. Imran's preferences over two consumption goods X and Y may be represented by the utility function $U(x, y) = \min\{2x - y, x - 2y\}$ where, (x,y) represent a typical consumption vector. If prices for X and Y are respectively, given by 7 and 3 then, which of the following is possible equilibrium consumption vector?

(A) $(x = 7, y = 0)$

(B) $(x = 0, y = 3)$

(C) $(x = 7, y = 3)$

(D) $(x = 7, y = 7)$

3. For the demand function $D(p) = max\ \{10 - 2p, 0\}$, at what price is demanded unit-elastic?

(A) $p = 5$

(B) $p = 2.5$

(C) $p = 2$

(D) $p = 4$

4. In case of strictly convex preference, the true relationship between average and extreme will be:

(A) Average is preferred to extreme.

(B) Extreme is preferred to average.

(C) Average and extreme are equal.

(D) Average is preferred or indifferent to extreme.

5. Which among the following assumptions is valid in theory of uncertainty but not under theory of ordinal preferences?

(A) Transitivity

(B) Completeness

(C) Independence of irrelevant alternatives

(D) Continuity

6. In an Edgeworth box economy comprising of two consumers Asif (A) and Bikash (B) the respective individual endowments of the two consumption goods X and Y are $w_A = (4, 2)$ and $w_B = (2, 4)$. The respective consumer preferences are represented by the following utility functions $U_A = min\ \{x_A, 2y_A\}$ and $U_B = min\{2X_B, y_B\}$. The core of this economy is

(A) a parallelogram

(B) a rhombus

(C) a triangle

(D) a point

7. A car can travel to town A from town B in 20 minutes by taking an uncongested arterial road but, minutes taken to cover the distance is given $20 + n/100$ when there are n cars on that arterial road. If the alternative route to B from A is via a bypass on which travel time is 45 minutes, how many cars do you expect to take the arterial road?

(A) 2500

(B) 2700

(C) 3600

(D) 3500

8. In a town consisting of 1000 identical citizens, every individual cares only about consuming a composite private good X and a public good G. The representative individual's utility function is $U_i = x_i + \sqrt{g}/20$. If the market rate of exchange of X for G is 1 then, what is the Pareto optimal level of G created in that town?

(A) 400

(B) 900

(C) 625

(D) 256

9. A video game parlour is visited by two types of customers-teenagers (T) and seniors (S) and their respective gaming demand may be represented by the following inverse demand functions:

$q_T = 220 - 40p_s$ and $q_s = 140 - 20p_s$ where q_i denotes the number of entry tickets demanded by the i th group at the corresponding price p_i. If parlour owner has only a fixed cost of operation of 500 per evening when he opens for business, how many tickets does he get to sell when he maximises profit without price discriminate between the two groups?

(A) 200

(B) 240

(C) 210

(D) 180

10. Consider the linear demand curve $q = 10 - 2p$. If the price is 2, then consumer surplus is

(A) 7

(B) 9

(C) 6

(D) 8

11. Consider a consumer whose preferences over goods X and Y are represented by the utility function $U(x, y) = min\ \{x^2, y\}$. Further, if $p_x = 15$ and $p_y = 10$ and the consumer buys 100 units of Y then what is his income?

(A) 1200

(B) 1280

(C) 1150

(D) 1180

12. In perfectly competitive market imposition of specific tax raises price by equal amount of tax rate if

(A) price elasticity of demand = 0

(B) price elasticity of demand =∞

(C) price elasticity of demand < 1

(D) price elasticity of demand = 1

13. Consider the utility function given by $U(W) = \log W^2$. where W denotes the level of wealth. The utility function shows,

(A) increasing absolute risk aversion.

(B) constant absolute risk aversion.

(C) decreasing absolute risk aversion.

(D) the nature of risk aversion is variable for different values of W.

14. Quasi rent of a factor is the difference between

(A) total revenue earned and total variable cost.

(B) total revenue earned and transfer earning.

(C) average revenue and average cost.

(D) average revenue and average variable cost.

15. Value of marginal productivity of a factor is the product of

(A) marginal physical product and marginal revenue.

(B) marginal physical product and average revenue.

(C) average physical product and marginal revenue.

(D) average physical product and average revenue.

16. If the market model with inventory has the following numerical form, comment about the nature of time path of the variable

$$Q_{dt} = 21 - 2P_t$$

$$Q_{st} = -3 + 6P_t$$

$$P_{t+1} = P_t - 0.3(Q_{st} - Q_{dt})$$

(A) Explosive oscillation

(B) Damped oscillation

(C) Monotonic convergent

(D) Uniform oscillation

17. Consider a production function $Q = L^{\alpha}K^{1-\alpha}$, where all the notations have their usual meaning. Given that 's' is the marginal propensity to save, 'n' is the population growth rate and $k = \frac{K}{L}$ is the per capita capital stock, the steady sate equilibrium will be stable if,

(A) $\frac{s(1-\alpha)}{n} < k^{\alpha}$

(B) $\frac{s(1-\alpha)}{n} > k^{\alpha}$

(C) $\frac{s\alpha}{n} < k^{1-\alpha}$

(D) $\frac{s\alpha}{n} > k^{1-\alpha}$

18. Consider the phase line given by the equation $\frac{dy}{dt} = (y-2)^2 - 16$. What are the intertemporal equilibria and what are the natures of the stability?

(A) y = 2 is unstable and y = 6 stable

(B) y = –2 stable and y = 6 unstable

(C) y = 2 unstable and y = –6 stable

(D) y = –2 unstable and y = 6 stable

19. How can a zero sum game be constructed from a constant sum game?

(A) By adding half of the constant sum to both the numbers.

(B) By subtracting half of the constant sum from both the numbers.

(C) By adding half of the constant sum to the smaller number and subtracting from the bigger one.

(D) By adding half of the constant sum to the bigger number and subtracting from the smaller one.

20. For any two person zero sum game which of the following is true

(A) $Minimax \leq Maximin$

(B) $Maximin < Minimax$

(C) $Maximin \leq Minimax$

(D) $Maximin = Minimax$

21. Consider the following two person game:

$$\begin{bmatrix} 1,1 & 0,0 & 0,0 & 0,0 & 0,0 & 0,0 \\ 0,0 & 0,0 & 0,0 & 0,0 & 0,0 & 0,0 \\ 0,0 & 0,0 & 0,0 & 0,0 & 0,0 & 0,0 \\ 0,0 & 0,0 & 0,0 & 1,1 & 0,0 & 0,0 \\ 0,0 & 0,0 & 0,0 & 0,0 & 0,0 & 0,0 \\ 0,0 & 0,0 & 0,0 & 0,0 & 0,0 & 1,1 \end{bmatrix}$$

How many pure strategy Nash equilibrium are there?

(A) 3

(B) 12

(C) 11

(D) 6

22. Consider the following data of a hypothetical economy

	(in Rs. Cr)
Durables goods	1083
Non-durable goods	2833
Services	5794
Fixed Investment	2130
Depreciation	1721
Change in private inventories	(–)4
Net exports	(–)708
Central Government's expenditure	979
State and Local government's expenditure	1696
Production taxes, statistical discrepancy, and Miscellaneous	872

The value of GDP of this hypothetical economy is

(A) 13808

(B) 12087

(C) 12959

(D) 11263

23. Consider a hypothetical economy in which consumer buys only rice and wheat. Consider a typical consumer who consumes 4 kg rice and 2 kg wheat per month. The year wise data on prices of rice and wheat are as follows:

Year	Price of rice (Rs.)	Price of wheat (Rs.)
2014	1	2
2015	2	3
2016	3	4

Suppose that the base year is 2014. The consumer price index and the rate of inflation in 2016 faces by the typical consumer are

(A) 175 and 75% respectively

(B) 250 and 43% respectively

(C) 175 and 43% respectively

(D) 250 and 75% respectively

24. In the solow growth model (single commodity and no technical progress) if labour force is constant then

(A) The proportionate change in capital output ratio is the proportion of total production saved divided by the existing labour force.

(B) The proportionate change in labour output ratio is the proportion of total production saved divided by the existing capital stock.

(C) The proportionate change in capital labour ratio is the summation of total production saved and the existing capital stock.

(D) The proportionate change in capital labour ratio is the proportion of total production saved divided by the existing capital stock.

25. The theoretical separation of nominal and real variable is known as

(A) Natural rate hypothesis

(B) Classical dichotomy

(C) Policy irrelevant proposition

(D) Monetary neutrality

26. Suppose that Y_d is disposable income, G is the autonomous government expenditure, $Z = tY$ is the total tax yield, and H is the deficit, where $Y_d = Y - tY, C = bY_d$ and $Y = C + I + G$. The trade off rate between change in income and change in deficit is

(A) $\frac{1}{(1-b)(1-t)}$

(B) $\frac{1}{1-b(1-t)}$

(C) $\frac{1}{(1-b)(1-bt)}$

(D) $\frac{1}{1-bt}$

27. According to Keynesians

(A) The economy always lies at the left of the intersection of the IS and LM curve in the short run.

(B) The economy always lies at the right of the intersection of the IS and LM curve in the short run.

(C) The economy always lies at the intersection of the IS and LM curve in the short run.

(D) The economy always lies above the intersection of the IS and LM curve in the short run.

28. Consider the IS-LM model developed by Hicks. Suppose the economy faces a temporary supply shock, e.g., a temporary increase in oil prices. Then it will lead to

(A) a rise in the full employment level of output and a permanent increase in the rate of inflation.

(B) no change in the full employment level of output and a permanent increase in the rate of inflation.

(C) a reduction in the full employment level of output and a temporary increase in the rate of inflation.

(D) a rise in the full employment level of output and a temporary increase in the rate of inflation.

29. Inclusion of real assets in consumption

(A) flattens the slope of IS curve as interest rate changes and shifts the IS curve as price changes.

(B) flattens the slope of LM curve as interest rate changes and shifts the IS curve as price changes.

(C) Keeps the IS curve unchanged with change in interest rate.

(D) makes the IS curve vertical.

30. In Permanent Income Hypothesis, which of the following is not true?

(A) There is no correlation between transitory and permanent income

(B) There is no correlation between transitory and permanent consumption

(C) There is positive correlation between transitory consumption and transitory income

(D) Consumption includes, in addition to purchase of non-durable goods and services, only the 'use' of desirables, rather than 'expenditure' on durables.

31. Which of the following statements is true in the context of the theory of demand for money?

(A) A plunger would never put all her wealth in terms of money.

(B) A diversifier would always put her entire wealth in bonds.

(C) A risk lover's indifference curve between return and risk is upward rising.

(D) A plunger would put all her wealth either in money or in bond.

32. The stock market just crashed; the Benchmark stock index fell by 750 points. You would expect the effect on aggregate consumption to be the largest if which of the following facts was true?

(A) The crash had been preceded by a large run-up in the price of stocks.

(B) Most stocks were owned by insurance companies.

(C) Most stocks were owned by pension funds that invested in the market.

(D) Many individuals had invested in the stock market immediately prior to the crash.

33. Paper currency is known as 'fiat money' because

(A) only a fraction of total currency is in coins.

(B) it is decreed legal tender.

(C) it cannot be used as payment for debts.

(D) it is intrinsically valuable.

34. In case of interest sensitive money supply, which of the following is true?

(A) Money market equilibrium condition contains either y or r, regardless of interest elasticity of money demand.

(B) LM curve becomes flatter than otherwise.

(C) IS and LM together determines equilibrium y, but not in the extreme case where money demand is not related to the changes in interest rate.

(D) IS curve becomes vertical.

35. The Impossible trinity states that it is impossible to have all three of the following at the same time:

(A) Flexible foreign exchange rate, free capital movement and an independent monetary policy.

(B) Flexible foreign exchange rate, free capital movement and an independent fiscal policy.

(C) Fixed foreign exchange rate, free capital movement and an independent monetary policy.

(D) Fixed foreign exchange rate, restricted capital movement and an independent monetary policy.

36. The mean and the variance of a group of 100 observations are 6.5 and 3.0 respectively. 55 of the observation have mean 6.6 and standard deviation 1.5. The mean and the standard deviation of the remaining 45 observations are

(A) 6.6, 1.5

(B) 6.38, 1.97

(C) 7.23, 2,15

(D) 7.19, 1.91

37. The measures of skewness for a certain distribution is –0.8. If the lower and the upper quartiles are 44.1 and 56.6 respectively, then the median is

(A) 55.35

(B) 65.45

(C) 50.66

(D) 52.52

38. If the correlation coefficient between x and y is 0.3 and between two other variables u and v is 0.6, which of the following is correct?

(A) The extent of association between u and v is twice that between x and y.

(B) The extent of association between u and v is half that between x and y.

(C) The extent of association between u and v is four times that between x and y.

(D) No conclusion can be reached.

39. A problem in mathematics is given to the four students whose chances of solving it are $\frac{1}{2}, \frac{3}{4}, \frac{1}{4}$ *and* $\frac{2}{5}$ respectively. The probability, that the problem will not be solved is

(A) 56/180

(B) 9/160

(C) 3/40

(D) 8/67

40. On your way to work you have to drive through a busy junction, where you may be stopped at traffic lights. The cycle of the traffic lights is 2 minutes of green followed by 3 minutes of red. What is the expected delay in the journey if you arrive at the junction at a random time uniformly distributed over the whole 5-minute cycle?

(A) 3/5

(B) 7/10

(C) 2/5

(D) 9/10

41. Groping about in the dark, we open one of two drawers in a chest and pick up an element at random. What is the probability that it is a pen-drive if one drawer contains 6 pen-drives and 6 pens, and the other contains 2 pen-drives and 4 pencils?

(A) 5/12

(B) 1/2

(C) 1/6

(D) 7/12

42. Type-I error in inference analysis arises due to

(A) acceptance of H_0 when it is false.

(B) rejection of H_1 when it is true.

(C) acceptance of H_1 when it is false.

(D) rejection of H_0 when it is true.

43. Suppose that a hypothesis test is conducted using a 5% significance level. Which of the following statements are correct?

(i) The significance level is equal to the size of the test.

(ii) The significance level is equal to the power of the test.

(iii) 2.5% of the total distribution will be in each tail rejection region for a 2-sided test.

(iv) 5% of the total distribution will be in each tail rejection region for a 2-sided test.

(A) (i) and (iv) only

(B) (i) and (iii) only

(C) (i), (ii) and (iii) only

(D) (ii) and (iv) only

44. The residual from a standard regression model is defined as

(A) The difference between the actual value, y, and the mean $\bar{y}$.

(B) The difference between the fitted value, $\hat{y}$, and the mean, $\bar{y}$.

(C) The difference between the actual value, y, and the fitted value, $\hat{y}$.

(D) The square of the difference between the fitted value, $\hat{y}$, and the mean $\bar{y}$.

45. In the equation, $Y = aX^b$, b represents

(A) Slope of Y

(B) Elasticity of Y

(C) Growth of Y

(D) Initial value of Y

46. If heteroscedasticity is present in a regression model but ignored, the OLS estimator will be

(A) biased

(B) inconsistent

(C) inconsistent but efficient

(D) consistent but inefficient

47. Which of the following models can be estimated using OLS, following suitable transformations if necessary?

(i) $y_t = \alpha + \beta x_t + u_t$

(ii) $y_t = \alpha + \beta e^{x_t} + u_t$

(iii) $\ln(y_t) = \alpha + \beta \ln(x_t) + u_t$

(iv) $y_t = \alpha + \beta x_t^2 + u_t$

(A) (i) only

(B) (i) and (iii) only

(C) (i), (ii), and (iv) only

(D) (i), (ii), (iii), and (iv)

48. Suppose that the value of R^2 for an estimated regression model is exactly zero. Which of the following are true?

(i) All coefficient estimates of the slopes will be zero.

(ii) The fitted line will be horizontal with respect to all of the explanatory variables.

(iii) The regression line has not explained any of the variability of y about its mean value.

(iv) The intercept coefficient estimate must be zero.

(A) (i), (ii) and (iii) only

(B) (i) and (iii) only

(C) (i) and (iv) only

(D) (ii) and (iii) only

49. Consider the following 2 regression models:

Model 1: $y_t = \beta_1 + \beta_2 x_{2t} + u_t$

Model 2: $y_t = \Upsilon_1 + \Upsilon_2 x_{2t} + \Upsilon_3 x_{3t} + u_t$

Suppose that, the R^2 is higher for model 2 but the adjusted R^2 is lower for model 2. Which one of the following is the most plausible explanation

(A) The coefficient estimateon Υ_3 is zero.

(B) The coefficient estimate on Υ_3 in non-zero but not significant.

(C) The variable x_{3t} is highly correlated with the variable x_{2t}.

(D) The researcher must have made a mistake since the situation described in the question could not happen.

50. Which of the following conditions are necessary for a series to be classifiable as weakly stationery process?

(i) It must have a constant mean.

(ii) It must have a constant variance.

(iii) It must have constant autocovariances for given lags.

(iv) It must have a constant probability distribution.

(A) (i) and (iv) only

(B) (i) and (iii) only

(C) (i), (ii) and (iii) only

(D) (ii) and (iv) only

Space for rough work

Space for rough work