34

QUESTION PAPER SERIES CODE

A

Registration No. :

Centre of Exam. : _____

Name of Candidate : _____

Signature of Invigilator

ENTRANCE EXAMINATION, 2013

M.Phil./Ph.D. ECONOMIC STUDIES AND PLANNING

[Field of Study Code : ECOP (136)]

Time Allowed : 3 hours   *Maximum Marks : 70*

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 70 questions in the Answer Sheet provided for the purpose by darkening the correct choice, i.e., (a) or (b) or (c) or (d) with 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 <u>ONLY ONE CIRCLE</u> for each question as shown in example below :

Wrong	Wrong	Wrong	Wrong	Correct
● ⓑ © ●	Ⓧ ⓑ © ⓓ	Ⓧ ⓑ © Ⓧ	⊙ ⓑ © ●	ⓐ ⓑ © ●

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.**

2

A closed economy which has a capital-output ratio of 4 is currently growing at 6 percent per annum with full employment. In this economy, workers do not save and 50% of profits are saved. Also, currently the only tax in this economy is a 25% tax on profits, of which the government uses half to carry out public investments and the other half to provide social services to workers.

1. What is the pre-tax share of profit in the national income of this economy?

   (a)   24 percent

   (b)   36 percent

   (c)   48 percent

   (d)   60 percent

2. Suppose that the government increases the profit tax from 25% to 50%, still using half the proceeds for public investment and half for social services. The effect will be

   (a)   lower investment and lower rate of growth

   (b)   higher investment and higher rate of growth

   (c)   same investment and higher provision of social services

   (d)   lower investment and higher provision of social services

The rate of change of the price of a commodity with respect to time, dp / dt, in a perfectly competitive market is equal to the product of the excess demand for the commodity and a positive constant α. The excess demand for the commodity is a function of the current market price p of the commodity and can be calculated using the formula $\beta_1 + \beta_{2p}$ where β_1 and β_2 are constants.

3. Which of the following is a sufficient condition for the existence of a positive equilibrium price in the market?

   (a) $\beta_1 = 0$ and $\beta_2 = 0$

   (b) $\beta_1 = 0$ and $\beta_2 < 0$

   (c) $\beta_1 > 0$ and $\beta_2 > 0$

   (d)   None of the above

4. Which of the following is a necessary condition for the existence of a positive equilibrium price in the market?

(a) $\beta_1 = 0$ and $\beta_2 = 0$

(b) $\beta_1 < 0$ and $\beta_2 > 0$

(c) $\beta_1 > 0$ and $\beta_2 > 0$

(d) None of the above

5. Which of the following is a sufficient condition for the existence of a unique and positive equilibrium price in the market?

(a) $\beta_1 = 0$ and $\beta_2 = 0$

(b) $\beta_1 < 0$ and $\beta_2 > 0$

(c) $\beta_1 > 0$ and $\beta_2 > 0$

(d) None of the above

6. Assuming that $\beta_1 > 0$, which of the following is a necessary condition for the existence of a unique and positive equilibrium price in the market?

(a) $\beta_2 = 0$

(b) $\beta_2 < 0$

(c) $\beta_2 > 0$

(d) A unique positive equilibrium price cannot exist with $\beta_1 > 0$

7. An equilibrium is defined to be globally stable if and only if, given any initial price for the commodity, the commodity price converges over time to the equilibrium value. Which of the following is a necessary condition for the existence of a globally stable equilibrium at a positive price in the market?

(a) $\beta_2 = 0$

(b) $\beta_2 < 0$

(c) $\beta_1 = 0$

(d) $\beta_1 < 0$

Direction (For Question Nos. **8** to **10**) :

"Few could argue with economists when they show that the more the entrepreneur function is operated efficiently and the more price and profit as economic *measures* regulate production, the more the economic maxim of greatest economic welfare is fulfilled. But it is wrong to conclude forthwith, as is so frequently done, that because the supremacy of the abstract entrepreneur benefits economic welfare, therefore the supremacy of the concrete undertaker of the real world is a benefit to economic welfare. Between the two there is a gulf fixed.

The most important thing which accounts for this 'gulf' is that the marginal utility of goods measured in money is a function not only of the amount of satisfaction gained by consumers from them, but also of the amount of money possessed by consumers. ... Inequality of income disturbs the index of utility by which undertaking is regulated. The demand which will be effective in calling forth the production of utilities will be the demand made effective over the command over money. When there are competing demands of the rich and poor for luxuries and for necessaries the demand of the rich will triumph under a regime of free enterprise. Consequently, the system of capitalist undertaking is not production in accordance with any true maxim of pure theory : it is production regulated by an index which is falsified by that very differential advantage which the system finds necessary to its own efficient working."

(Maurice Dobb, 'The Entrepreneur Myth' in *Collected Essays on Economic Theory and Socialism*)

8. In this passage, Dobb argues that the concrete capitalist undertaking in the real world responds to

    (a) the marginal utility in terms of the amount of satisfaction gained by consumers from goods

    (b) the effective demand that is determined by income distribution

    (c) the pursuit of the greatest economic welfare for all

    (d) None of the above

9. What is the differential advantage that the capitalist system finds necessary to its own efficient working, according to Dobb?

    (a) Prices and profits as the regulators of production

    (b) Entrepreneurs always searching for ways of being efficient

    (c) Entrepreneurs searching for ways to improve the satisfaction of consumers

    (d) Dobb does not make it clear in this passage

10. If the demand of the rich for luxuries triumphs over the demand of the poor for necessaries, this reflects

    (a) unequal income distribution determined the pattern of production

    (b) effective demand depends on the command over money

    (c) Neither (a) nor (b)

    (d) Both (a) and (b)

Direction (For Question Nos. **11** and **12**) :

In an economy, where measurement of GDP has 5% margin of error, measured GDP was 100 in year 1, 110 in year 2 and 115 in year 3.

11. Which of the following statements can be made with complete confidence?

(a) The growth between year 1 and year 2 was at least 5%

(b) The growth between year 1 and year 3 was at least 5%

(c) The economic growth in year 3 was positive

(d) The economy slowed down sharply in year 3

12. In the above economy, poverty measurement also has 5% margin of error and is measured as 40% in year 1, 45% in year 2 and 35% in year 3. We can conclude that

(a) poverty decline is positively correlated with GDP growth

(b) poverty decline is negatively correlated with GDP growth

(c) poverty decline is uncorrelated with growth

(d) None of the above

Direction (For Question Nos. **13** to **15**) :

Consider an economy in which aggregate output at time t, $Y(t) = A(t)K(t)^{\alpha}L(t)^{\beta}T(t)^{\gamma}$ where $K(t)$, $L(t)$ and $T(t)$ are the aggregate quantities of capital stock, labour force and land (used for production) in the economy at time t, and α, β and γ are positive constants. Suppose the capital-output ratio in the economy remains constant over time, the labour force grows exponentially at a constant rate $n \geq 0$ and the stock of land (used for production) grows exponentially at a constant rate $m \geq 0$.

Answer the following questions :

13. If $\alpha + \beta = 1$, $n > 0$, $m = 0$ and $dA(t)/dt = 0$ for all values of t, then which of the following statements is true?

(a) The economy's output does not grow

(b) The capital-labour ratio remains constant

(c) Labour productivity grows at a constant positive rate

(d) None of the above

14. If $\alpha + \beta = 1$, $n > 0$, $m > 0$ and $dA(t)/dt = 0$ for all values of t, then which of the following statements is true?

(a) The economy's output does not grow

(b) The capital-labour ratio remains constant

(c) Labour productivity grows at a constant positive rate

(d) None of the above

15. If $\alpha = 1/3$, $\beta = 2/3$, $\gamma = 1/2$, $n > 0$, $m = 0$ and $\{dA(t)/dt\}/A(t) = 0.024$ for all values of t, then what is the exponential rate of growth of labour productivity?

(a) 0.008

(b) 0.016

(c) 0.024

(d) 0.036

Direction (For Question Nos. **16** and **17**) :

X and Y are independent and identically distributed random variables. Suppose that X and Y are distributed normally with mean and variance.

16. Which of the following is true?

(a) Random variable $X - Y$ is identically zero

(b) Random variable $X + Y$ is equal to the random variable $2X$

(c) Random variable $X - Y$ has mean equal to 0 and standard deviation equal to $2 \times \sigma$

(d) None of the above

17. Which of the following is true?

(a) The covariance between random variables $X - Y$ and $X + Y$ is equal to [mean of random variable X^2] + [mean of random variable Y^2]

(b) Random variables $X - Y$ and $X + Y$ are dependent

(c) Random variables $X - Y$ and $X + Y$ are independent

(d) None of the above

18. A miner is trapped in a mine containing two doors. The first door leads to a tunnel that takes him to safety after two hours of travel. The second door leads to a tunnel that returns him to the mine after three hours of travel. Assuming that the miner is at *all* times equally likely to choose any one of the two doors, what is the expected length of time until the miner reaches safety?

(a) 5 hours

(b) 3·5 hours

(c) 2·5 hours

(d) None of the above

19. Consider the following model for the population $y = x + u$, where *(i)* y, x and u are random variables, *(ii)* $E(u) = 0$, *(iii)* cov $(u, x) = 0$ and *(iv)* var $(x) = 3$. You have a random sample of size n, i.e., $\{(x_i, y_i) \mid i = 1, ..., n\}$, from the population and construct the random variable as follows. Which of the following is true?

(a) The expected value of $\hat{\beta}$ is 1

(b) The expected value of $\hat{\beta}$ is 1/3

(c) The probability limit of $\hat{\beta}$ is 1

(d) None of the above

Direction (For Question Nos. **20** to **22**) :

You have a data set consisting of six observations. Each observation i provides realizations of random variables x_i and y_i, i.e., observation i is a realization of the random vector (x_i, y_i). For three observations, the realization of x_i is −1 while the average value of y_i is 2. For the remaining three observations, the realization of x_i is 1 while the average value of y_i is 4. Consider running an ordinary least square regression of y on a constant x. Let the estimated coefficient on the constant be denoted $\hat{\alpha}$. Let the estimated coefficient on x be denoted $\hat{\beta}$.

20. Which of the following statements about $\hat{\beta}$ is correct?

(a) There is not enough information to determine the value of $\hat{\beta}$

(b) The value of $\hat{\beta}$ is equal to 1

(c) The value of $\hat{\beta}$ is equal to 2

(d) None of the above

21. Which of the following statements about $\hat{\alpha}$ is correct?

(a) There is not enough information to determine the value of $\hat{\alpha}$

(b) The value of $\hat{\alpha}$ is equal to 2

(c) The value of $\hat{\alpha}$ is equal to 3

(d) None of the above

22. Which of the following statements about the coefficient of determination (i.e., R^2) is correct?

    (a) There is enough information to determine the value of R^2

    (b) The value of R^2 is strictly above zero

    (c) The value of R^2 is equal to zero

    (d) None of the above

23. Sahil is offered two gambles. With gamble A, he either gains ₹ 2 or loses ₹ 1, each with 50% probability. With gamble B, he either gains ₹ 3 or loses ₹ 2, each with 50% probability. Sahil prefers gamble B to gamble A. What can we conclude?

    (a) Sahil is risk loving

    (b) Sahil is risk neutral

    (c) Sahil is risk averse

    (d) Insufficient information to determine

24. Which of the following statements is **not** correct?

    (a) Information plays an important role in the economy

    (b) Asymmetric information may lead to the non-existence of a market

    (c) It is always desirable for a person to have more information than the person he is trading with

    (d) Adverse selection will not occur if there is no asymmetric information

25. After a person buys insurance for his car, he will generally not care for his car as much as he otherwise would. This is an example of

    (a) adverse selection

    (b) moral hazard

    (c) risk aversion

    (d) diminishing marginal utility

Direction (For Question Nos. **26** to **29**) :

Suppose that there are two types of cars, good and bad. The qualities of cars are not observable but are known to the sellers. Risk-neutral buyers and sellers have their own valuation of these two types of cars as follows :

Types of Cars	Buyer's Valuation	Seller's Valuation
Good (50% probability)	5,000	4,500
Bad (50% probability)	3,000	2,500

26. Suppose that both buyers and sellers observe the quality. What happens?

(a) Both good and bad cars are traded

(b) Only good cars are traded

(c) Only bad cars are traded

(d) Neither good nor bad cars are traded

27. When a buyer does not observe the quality, what is the highest price he/she will offer for a used car if he/she ignores adverse selection?

(a) 2,500

(b) 3,000

(c) 4,000

(d) 4,500

28. When buyers do not observe the quality, what happens in the market?

(a) Both good and bad cars are traded

(b) Only good cars are traded

(c) Only bad cars are traded

(d) Neither good nor bad cars are traded

29. Suppose that sellers value a good car at 4,500 and a bad car at 2,500, and quality is not observed by the buyers. What is the highest price that risk-neutral buyers will offer for a used car if they recognize adverse selection?

(a) 2,500

(b) 3,000

(c) 4,000

(d) 4,500

30. The Mahalanobis model that underpinned the Second Five-Year Plan

(a) focused on raising aggregate consumption

(b) emphasised the importance of investment in capital goods production

(c) was fundamentally concerned with the domestic savings rate

(d) saw the production of capital goods as determined by the demand from the producers of consumption goods

Direction : Use the following table of logarithms to answer Question Nos. **31** to **33** :

Y	$\ln(Y)$
2	0·7
2·5	0·9
3	1·1
3·5	1·3
4	1·4
4·5	1·5
5	1·6
5·5	1·7
6	1·8

31. If population of a country was 2 million in 1970 and 3 million in 1990, what was the exponential rate of growth?

(a) About 1 percent per annum

(b) About 2 percent per annum

(c) About 3 percent per annum

(d) About 4 percent per annum

32. If, for the next 20 years, population of the country grows at half the rate at which it grew between 1970 and 1990, what would be its population in 2010?

(a) 3 million

(b) 3·5 million

(c) 4 million

(d) 4·5 million

33. Per capita food grain production in the country remained unchanged at 150 kg between 1970 and 1990. If food grain production follows a simple growth rate, what was the annual rate of growth of total food grain production of the country between 1970 and 1990?

(a) Zero growth

(b) 2 percent per annum

(c) 2·5 percent per annum

(d) 3 percent per annum

34. A local video store estimates their average customer's demand per year is $Q = 7 - 2P$, and knows the marginal cost of each rental is ₹ 0·5. What is the annual profit that the video store expects to make on an average customer if it engages in optimal two-part pricing?

(a) ₹ 6

(b) ₹ 7

(c) ₹ 8

(d) ₹ 9

35. What price should a firm charge for a package of two pens given a marginal cost of ₹ 2 and an inverse demand function $P = 6 - 2Q$ by the representative consumer?

(a) ₹ 2

(b) ₹ 6

(c) ₹ 8

(d) ₹ 10

36. Transfer prices

   (a) refer to the rates at which remittances are transferred from one country to another

   (b) are prices that different divisions of a multinational company charge one another for goods and services

   (c) are prices of the charges that the parent company of a multinational enterprise imposes on its subsidiaries

   (d) are payments made by migrants for crossing borders

Direction (For Question Nos. **37** to **39**) :

"I attach a lot of importance to the task of completing India's agrarian transition. To complete this transition, I think that public investment will have a leading role to play, in the form of providing infrastructure as well as providing necessary research and development support. ... In addition there is the need to upgrade the quality of human agents, through appropriate investments in health, education and nutrition. I believe that an increase in the agricultural surplus can in part play the same role as the effect induced by the foreign trade multiplier in a small open economy. This is because of the size of the country, the very different resource bases of different regions of the country and the limited mobility of unskilled labour between regions. ... A sustained increase in agricultural productivity can significantly help to widen the market for industrial production on the all-India level as well, enabling economies of scale to be reaped for most industrial goods, especially industrial consumer goods."

[Sukhamoy Chakravarty, *Development Planning in India*]

37. In this passage, Chakravarty attaches importance to agriculture because

   (a) India is not a small open economy

   (b) quality of human capital is inadequate

   (c) there is limited mobility of labour

   (d) productivity in agriculture is low and there is scope for economies of scale in industry

38. Chakravarty thinks that public investment in agricultural infrastructure and research is important because

   (a) this is a substitute for investments in health, education and research

   (b) this will make India a more open economy

   (c) this will increase the mobility of labour

   (d) this is necessary to increase the productivity of agriculture

39. What do you think Chakravarty means by 'agrarian transition'?

   (a) Reaching agricultural productivity to levels in advanced economies

   (b) Carrying out comprehensive land reforms

   (c) Releasing agricultural land for its more productive use in industry

   (d) Reducing 'dualism' in the sense of release of surplus labour from this sector while maintaining the demand-supply balance for agricultural goods

Suppose that you are a manager. You are considering whether or not to monitor employees with the payoffs in the following normal form game.

		Worker	
		Work	Shirk
Manager	Monitor	−1, 1	1, −1
	Don't Monitor	1, −1	−1, 1

40. Which of the following pair of strategies constitute a Nash equilibrium?

(a) Manager monitors and worker works

(b) Manager does not monitor and worker works

(c) Manager monitors and worker shirks

(d) None of the statements associated with this question are correct

41. What should the manager do to solve the shirking problem?

(a) Always monitor

(b) Never monitor

(c) Sincerely tell workers not to shirk

(d) Engage in 'random' spot checks of the workplace

42. The Incremental Capital Output Ratio (ICOR)

(a) is always a measure of efficiency in the economy

(b) is likely to decline as the investment rate increases

(c) can be affected by the level of effective demand in the economy

(d) will change depending on whether the economy is closed or open

43. Suppose that leather accounts for 75 percent of the cost of making shoes. There is a 25 percent import tariff on shoes and a 20 percent import tariff on leather. The effective rate of protection on the production of shoes is

(a) 20 percent

(b) 30 percent

(c) 40 percent

(d) 50 percent

44. In NSSO surveys of employment and unemployment, current daily status employment is based on information for

(a) January 1 of the year of the survey

(b) March 31 of the year of the survey

(c) one day prior to the date of the survey

(d) seven days prior to the date of the survey

45. The market demand in a Bertrand duopoly is $P = 10 - 3Q$, and the marginal costs are ₹ 1. Fixed costs are zero for both firms. Which of the following statement(s) is true?

(a) $P = ₹ 1$

(b) Profits of Firm One = profits of Firm Two

(c) Producer's surplus of Firm One = producer's surplus of Firm Two

(d) All of the statements associated with this question are correct

46. Among the following variables that the 13th Finance Commission used to arrive at States' share of Central Taxes, which of these served the purpose of reducing horizontal equity?

(a) Population

(b) Area

(c) Fiscal capacity distance

(d) Fiscal discipline

47. The inverse demand in a Cournot duopoly is $P = a - b(Q_1 + Q_2)$, and costs are $C_1(Q_1) = c_1 Q_1$ and $C_2(Q_2) = c_2 Q_2$. The government has imposed a per unit tax of ₹ t on each unit sold by each firm. The equilibrium output of each firm is the same as a situation where each firms'

(a) demand increases by t

(b) demand decreases by t

(c) marginal cost increases by t

(d) marginal cost decreases by t

48. A new firm enters a market which is initially serviced by a Cournot duopoly charging a price of ₹ 20. What will the new market price be should the three firms co-exist after the entry?

(a) ₹ 20

(b) Below ₹ 20

(c) Above ₹ 20

(d) There is no equilibrium price

49. According to The Economist in July 2011, the price of a Big Mac hamburger in the US was $ 4·0 and in China it was 15 yuan. The exchange rate between the two currencies at the time was 6·5 yuan per US dollar. If Big Mac prices are a reflection of purchasing power parity, this implies that

(a) the yuan was overvalued vis-à-vis the US dollar

(b) the yuan was undervalued vis-à-vis the US dollar

(c) the yuan was neither overvalued nor undervalued vis-à-vis the US dollar

(d) insufficient information to assess relative strengths of the two currencies

50. Consider an economy whose trade is balanced in which consumption expenditure C, which is a function of current disposable income (Yd), is estimated at 900 when disposable income is 1000. The marginal propensity to save in the economy is estimated at 20 percent and the government's tax revenues at 25 percent of GDP. If investment expenditure in that economy is 650 and the government is committed to balancing its budget, then the equilibrium level of income would be

(a) 4250

(b) 5000

(c) 5750

(d) 6250

51. The 'Volcker rule' included in the Dodd-Frank Wall Street Reform and Consumer Protection Act in the US prohibits

(a) any banking entity from engaging in proprietary trading or engaging as principal in securities transactions for profit

(b) banks from accepting deposits that are in excess of a specified proportion of promoters' equity

(c) banks from lending sums that are in excess of a specified proportion of promoters' equity

(d) banks from owning any shadow banking firm

52. When defining the Basel capital adequacy norms 'Tier I' capital includes

(a) all common stock and some preferred stock

(b) all forms of debt

(c) all forms of equity and debt

(d) all assets shown on the balance sheet

53. 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

54. The term 'quasi-rent' refers to

(a) the temporary return to a factor of production whose supply does not adjust to demand in the short run

(b) return to land of superior quality

(c) payments by tenants that are not legally recorded

(d) surplus deriving from monopoly ownership

55. The rate of growth of employment generation in Indian economy during the 1990s was

(a) approximately twice of that in the 1980s

(b) approximately three times that in the 1980s

(c) approximately the same of that in the 1980s

(d) approximately half of that in the 1980s

Direction (For Question Nos. **56** to **58**) :

Ms. Arora 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. Arora 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.

56. In case the painter works of 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

57. 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

58. Which arrangement among the following is possible?

(a) The electrician will work on Tuesday and the interior decorator on Friday

(b) The painter will work on Wednesday and the plumber on Thursday

(c) The carpenter will work on Tuesday and the painter on Friday

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

59. Consider the following statement :

Inflation increases, then unemployment decreases.

Which of the following statements is equivalent?

(a) For unemployment to decrease, inflation must increase

(b) If unemployment decreases, then inflation increases

(c) Unemployment can only decrease if inflation increases

(d) If unemployment does not decrease, then inflation does not increase

60. 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 a person his or her younger brother

(c) A rule that assigns to each number its square root

(d) A rule that assigns to each person in a classroom his or her height

61. A consumer's preference over commodities 1 and 2 can be represented by the utility function $U(x_1, x_2) = x_1 + x_2$. Suppose the price of commodity 1 changes, which of the following statements is correct?

(a) There is no income effect on the demand for commodity 1

(b) There is no substitution effect on the demand for commodity 1

(c) There is no substitution effect on the demand for commodity 1 if the cheaper good remains cheaper after the price change

(d) There is no income effect on the demand for commodity 1 if the cheaper good remains cheaper after the price change

62. Consider the following statements about the Human Development Indices (HDI) of two countries A and B :

(i) HDI of country A is 2 and HDI of country B is 1 implies that A is twice as developed as B.

(ii) HDI of country A is 0·75 and HDI of country B is 0·25 implies that A is thrice as developed as B.

Which of the following is correct?

(a) (i) is true and (ii) is false

(b) (i) is false and (ii) is true

(c) Both (i) and (ii) are false

(d) Both (i) and (ii) are true

Direction : Answer Question Nos. **63** and **64** on the basis of the following information :

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

63. The consumer's budget set is

    (a) $\{(x_1, x_2) \mid 4x_1 + 3x_2 \leq 10 \text{ and } x_1, x_2 \geq 0\}$

    (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) $\{(1, 2)\}$

64. Suppose the price of both commodities falls by 10 paisa and money income increases by 10 paisa. 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 more of commodity 2 and less of commodity 1

    (d) the consumer's optimal bundle does not change

65. 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 answer correct is

    (a) 11

    (b) 12

    (c) 27

    (d) 63

66. Which of the following represents the same preferences as the utility function $U(x_1, x_2) = x_1 + x_2$?

    (a) $2x_1 + 2x_2$

    (b) $x_1 + 2x_2$

    (c) $2x_1 + x_2$

    (d) $x_1 x_2$

67. Two firms, L and F, compete as a Stackelberg duopoly. The demand they face is $P = 100 - 3Q$. The cost function for each firm is $C(Q) = 4Q$. The profits (π) of the two firms are

(a) $\pi_L = 384; \pi_F = 192$

(b) $\pi_L = 192; \pi_F = 91$

(c) $\pi_L = 56; \pi_F = -28$

(d) $\pi_L = 56; \pi_F = 28$

68. Let X, Y and 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) None of the above

69. It is observed that while rural wage rates increased significantly between 2004–05 and 2009–10, there was little or no increase in employment. Which of the following is *not true* about this period?

(a) The labour force growth slowed down since more of the young remained in education

(b) There was a decline in female labour force participation rates

(c) There was a slow down in male employment in non-agriculture

(d) NREGA caused a sharp increase in employment in public works

70. Jammu & Kashmir, Himachal Pradesh, Uttarakhand and the States of North-East India are termed Special Category States. Which of the following is *not true* ?

(a) These States get preferential treatment in devolution of grants from the Centre

(b) These States are all border States

(c) These States are poorer in terms of per capita GDP than other States

(d) These States have to bear higher costs on account of geography, difficult terrain and low population density

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