DECEMBER 2022 **U/ID 32506/URM2A**

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer any TEN questions.

1. Which of mathematics is active in economics?

2. With the slope 6 and y intercept 4, find the equation of line?

3. What must be added to the domestic factor income to avail national income?

4. Which function provides an abstract mathematical representation of the relation between the production of goods or service and the inputs used?

5. A saving account of Rs. 10,000 earns simple interest at 5% per annum. Calculate the value of the account after six years.

6. If the demand and supply functions $Q_q = 10$ and $Q_s = 3p - 2$, find the equilibrium (P_o, Q_o).

7. Define series and give example.

8. Mention any applications of linear programming in India economy.

9. When the utility is maximized?

10. If $TR = 75\theta - 4\theta^2$, find MR.

11. Define definite integral.

12. If the price of the good is Rs. 20, what will consumer surplus equal?

PART B — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

13. Find the slope, y-intercept and x-intercept for $y = 2x + 5$.

14. Explain the national income determination.

15. Find the equilibrium and price quantity of the supply and demand function $Q^D = -5p^D + 100$; $Q^S = 15p^S - 100$.

16. Find the 10^{th} term of the sequence 1, 2, 4, 8, 16.

17. Write the linear programming problem in matrix form.

18. Explain the condition for maximization of a profic function.

19. Write a note on the application of integral calculus in economic.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

20. (a) A line passes through the points (2, 4) and (6, 1). Deduce the equation of the line.

(b) Plot the graph of the line.

21. Suppose that the government decides to allow an increase in the money supply M. What will be the effect on the equilibrium value of the national income?

22. Calculate the compound interest

(a) On Rs. 20,480 at 6¼ per annum for 2 years 73 days.

(b) On Rs. 30,000 at 7% per annum for 2 years.

23. Examine the maxima and minima of the function $z = x^2 + y^2 - 10x + 2y$.

24. The demand and supply functions for a good are $P = 50 - Q^2$ and $P = 10 + 6Q$ respectively. Calculate the consumer and producer surplus.

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