DECEMBER 2024 **U/ID 32506/URM2A**

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer any TEN questions.

1. What is a mathematical economist?
2. Define Coordinate graph.
3. What is the equation of straight line slope and intercept?
4. What are linear functions? Give an example.
5. How to Identify a Nonlinear Function Table?
6. Define Market Equilibrium.
7. What is matrix in mathematical economics?
8. What are some mathematical examples of sequence and series?
9. What is optimization in mathematical economics?
10. Define the concept of differentiation.
11. What is exponential function in mathematical economics?
12. How is total consumer surplus measured?

PART B — ($5 \times 5 = 25$ marks)

Answer any FIVE questions.

13. Show the derivation of the equation of a line in the slope-intercept form with neat graph.

14. Find the slope of the line which crosses the line at point (-2,6) and have an intercept of 3.

15. A consumer has an income of $ 200 to spend on two goods, X and Y. Prices of X and Y are $20 and $5 respectively. What happens if the budget falls to $80?

16. Distinguish Linear and Nonlinear Functions.

17. A firm plans to invest an amount of money at the beginning of every year in order to accrue a sum of Rs. 1,00,000 at the end of the five-year period. What is the value of the amount, if the investment rate is 14% compounded annually?

18. Show the rules of differentiation with one explanatory variable.

19. How to calculate producer surplus? Give an example.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions.

20. Find the equation of the lines for which tan θ = 1/2, where θ is the inclination of the line such that:

    (a) y-intercept is -5

    (b) x-intercept is 7/3

21. A consumer has an income of $2400 to spend on two goods, X and Y. Prices of X and Y are $30 and $50 respectively.

    (a) If the consumer spends $2400 to consume X and Y, draw his budget line.

    (b) What happens if the budget increases by 50%?

22. Explain payback period in investment appraisal with an appropriate example.

23. Explain Derivative of a Sum or Difference of Two Functions with suitable example.

24. The demand and supply function of a commodity are $p_d = 18 - 2x - x^2$ and $p_s = 2x - 3$. Find the consumer's surplus and producer's surplus at equilibrium price.

———————