MAY 2023 **U/ID 32506/URM2A**

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer any TEN questions.

1. Define the relationships between the economic variables.

2. Find the slope and y-intercept of the equation of the line $2x - y + 5 = 0$.

3. Distinguish between linear function and non linear function.

4. Mention any two method of computing National income.

5. Find the simple interest on Rs.6,000 for 3 years at 7.5% per annum.

6. Define compound interest.

7. Define sequence and give exame.

8. If D=44–7ρ be demand function and $s = 2p - 10$ is the supply function, find the equilibrium price.

9. What function express the relation ship between price of the good and quantity of the good demand.

10. What is the marginal revenue (MR) for the total revenue function $R = 100 - x^2$.

11. Define Indefinite Integral.

12. For the 8 units of output, average fixed cost is Rs.12.50 and average variable cost is Rs.81.25, find the total cost at this output level.

PART B — ($5 \times 5 = 25$ marks)

Answer any FIVE questions

13. Find the slope, y intercept and x-intercept of $y = \frac{x}{2} + 20$.

14. Explain the concept of market equilibrium .

15. Find the inverse of $A = \begin{pmatrix} 4 & 1 & -5 \\ -2 & 3 & 1 \\ 3 & -1 & 4 \end{pmatrix}$.

16. Find the sum of $1 + 2 + 3 + ... + 50$.

17. Explain investment Appraisal.

18. Explain the condition for minimum value of a function.

19. Evaluate $\int \frac{4x^3 + 10x - 2e^x}{x^4 + 5x^2 - 2e^x} dx$.

PART C — ($3 \times 10 = 30$ marks)

Answer any THREE questions

20. Explain the nature and scope of mathematical economics.

21. Explain National income model.

22. Calculate the compound interest.

(a) On Rs.16,000 at 20% per annum for 9 months.

(b) On Rs.25,000 at 12% per annum for 3 years

23. Examine the maxima and minima of the function $x^3 - 8x^2 + 16x - 1$ in the interval [0,2].

24. Calculate the consumer and producer surplus for the goods $P = 100–0.5Q$ and $P = 10+0.5Q$