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(July)

ECONOMICS

(Honours)

(**Mathematics for Economist**)

Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. (a) Define set. Explain different operations of sets with examples. 2+3=5

(b) Given the sets

$$A = \{1, 2, 3, 4\}$$
$$B = \{2, 4, 5, 6\}$$
$$C = \{0, 3, 4, 7, 8\}$$

Prove the De Morgan's law for union and intersection. 4

(*Turn Over*)

(c) In a class of 25 students of economics and politics, 12 students have taken economics. Out of these 8 have taken economics but not politics. Find the number of students who have taken economics and politics and those who have taken politics but not economics. 3+3=6

2. (a) Differentiate any *three* of the following with suitable examples : 3×3=9

   (i) Linear and quadratic functions

   (ii) Homogeneous and homothetic functions

   (iii) Explicit and implicit functions

   (iv) Domain and range of a function

(b) Find the equation of the straight line passing through the points (3, –2) and (–4, 1). Also write down the gradient of the line. 4+2=6

UNIT—II

3. (a) What is matrix? Mention some of its properties. 1+5=6

(b) Solve the given simultaneous equations by matrix inversion method : 9

$$2x_1 + 3x_2 - x_3 = 15$$
$$4x_2 + 2x_3 = 16$$
$$3x_1 + 2x_2 = 18$$

(*Continued*)