2023

ECONOMICS

B.A. 1st Semester End Examination - 2023

PAPER - SEC - 1

Numerical Analysis for Economics

Full Marks : 40 *Time - 2 hours*

The figures in the right-hands margin indicate marks.
Candidates are required to give their answers in their own words as far as practicable. Illustrate the answera wherever necessary.

Group - A

Answer any five of the following questions : 2 x 5 = 10

1a) Distinguish between population and sample 2

b) Distinguish between arithmetic scale and logarithmic scale. 2

c) What is an ogive ? What are its uses ? 2

d) What do you mean by rational numbers ? 2

e) Evaluate the slope of a budget constraint. 2

f) Evaluate the slope of an indifference curve. 2

(Turn Over)

g) What do you mean by convex function.

h) If $y = (x^3 + 8x)^4 e^{7x}$ find $\frac{dy}{dx}$ 2

i) Devive the marginal revenue function for the demand schedule $P = 80 - Q$ 2

Group - B 4 x 5=20

2 State the distributive low of set operation verify the distributive law for the following sets.
$A = \{ 4,5,6 \}$, $B = \{ 3,4,6,7 \}$ and $c = \{ 2,3,6\}$

3 For the function $y = -x^2$, if the domain is the set of all non-negative real numbers what will its range be ? 5

4 Show that $X^{m/n} = \sqrt[n]{xm} = (\sqrt[n]{x})^m$. Specify the rules applied in each step. 5

5. Answer any four of the following
If $AR = 32 - 5Q^2$, find out MR.

6. Show that the function $y = 3x^3 + 3x^2 + x - 1$ is a monotonic increasing function.

7. Find the equilibrium price in the model given below :
$D = 75 - 3P$
$S = 20 + 2P$

8. **What is a function ? Give some examples of functions used in ECONOMICS.**

Group - C

Answer any one of the following : 1 x 10 =10

9. Given $U = x^{0.4} y^{0.6}$

and $Px = 2$
also $Py = 6$, the consumes is willing to spend Rs. 60 on two goods x & y. Evaluate total utility maximiting the value of x & y.

10. The expenditure of a household on consumer goods 'C' is related to the households income in the following way. When the households income is Rs. 1000/- the expenditure on consumer goods is Rs. 900/- & whenever income is increased by Rs. 100/- the expenditure on consumer goods is increased by Rs. 80/-. Express the expenditure on consumer goods as a function of income assuming linear relationship.