

Sub.Code : 908

NEB - GRADE XII
Business Mathematics
Model question (for 2077)

Candidates are required to give their answer in their own words as far as practicable. The figures in the margin indicate full marks.

Full Marks -40

Time -1.30 hrs.

Attempt All questions.

Group 'A'

4×2×3=24

1. a. Find the domain and range in relation

$$R = \{(4,8), (4,12), (5,10), (6,12), (7,7)\}$$

- b. Find the first term of a G.P. whose fifth term is 243 and common ratio is 3.

2. a. Find the slope and intercepts of the line $2x-3y+10=0$.

- b. Evaluate: $\lim_{x \rightarrow 3} \frac{x-3}{\sqrt{x-2}-\sqrt{4-x}}$

$$\lim_{x \rightarrow 3} \frac{x-3}{\sqrt{x-2}-\sqrt{4-x}}$$

3. a. Find $\frac{dy}{dx}$ when $x = 2at, y = at^2$

- b. If the marginal revenue function for output x is $MR=x^3+4x-2$, find the total revenue function.

4. a. Find the mean deviation from mean of the following observations.

x	6	8	10	12	14	16	18	20
f	1	14	25	27	18	9	4	2

- b. If 200 men can make an embankment 3km long in 25 days, how much overtime per day must 60 men work to complete an embankment 2km long in 32 days; 12 hours being a day's work?

Contd...

908

Group 'B' (2)

4×4=16

5. Solve by Cramer's rule: $x+y+z=6$, $2x+3y-z=5$, $3x+4y+5z=26$
6. Find the derivate from first principles . $y=\frac{1}{x}$
7. Find the extreme values of the functio F defined by $F=10x+15y$ subject to constraints $x + 2y \leq 20$, $x + y \leq 16$, $x \geq 0$, $y \geq 0$
8. Ram, shyam and Hari invest in a business with capitals Rs. 5000. Rs 4500 and Rs 6500 respectively after six months, Ram doubles his capital and after next three months Shyam trebles his capital. If the profit at the end of the year amounted to Rs. 8300, find the profit obtained by each.

-0-