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(21121) Roll No. .....

BBA-Ist Sem.

18037 (CV-II)

B.B.A. Spl. & Back Paper Examination, Nov.-2021

BUSINESS MATHEMATICS

(BBA-102)

Time : 1½ Hours] *[Maximum Marks : 75*

Note : Attempt questions from **all** sections as per instructions.

Section-A

(Very Short Answer Type Questions)

Note : Attempt any **two** questions. Each question carries 7.5 marks. Very short answer is required. 2×7.5=15

1. At what rate the sum will double itself after 20 years?
2. Show that the profit of 25% on purchase price or cost price means 20% profit on selling price.

P.T.O.

3. What do you meant by square matrix?
4. Let, A={1, 2, 3, 4}, B={2, 4, 5, 6} and C={3, 4, 6, 8} then, find $A \cap (B \cap C)$.
5. If $y=x.e^x$, find $\frac{dy}{dx}$.

Section-B

(Short Answer Type Questions)

Note : Attempt any **one** question out of the following **three** questions. Each question carries 15 marks. Short answer is required not exceeding 200 words. 1×15=15

6. Two numbers are in ratio of 7:11. If 7 is added to each of the numbers, the ratio becomes 2:3. Find the numbers.
7. Find the maximum profit that a company can make, if the profit function is given by $P(x)=41+24x-18x^2$.

8. If $A = \begin{bmatrix} 9 & 1 \\ 4 & 3 \end{bmatrix}$, $B = \begin{bmatrix} 1 & 5 \\ 7 & 12 \end{bmatrix}$, find x if $3A+5B+2x=0$.

Section-C

(Long Answer Type Questions)

Note : Attempt any **two** questions out of the following **five** questions. Each question carries 22.5 marks. Answer is required in detail. $2\times22\frac{1}{2}=45$

9. (a) In class of 25 students, 12 students have taken economics; 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.

   (b) Let $A=\{a, b\}$, $B=\{p, q\}$, $C=\{q, r\}$ Find :

   (i) $(A\times B)\cup(A\times C)$

   (ii) $A\times(B\cap C)$

10. Show that the sequence 9, 12, 15, 18, ... is an A.P. Find its 16th term and the nth term.

11. Evaluate the following integrals:

   (i) $\int 5x^2\,dx$

   (ii) $\int \frac{x^4-1}{x^2+1}\,dx$

12. (a) There are 5 boys and 3 girls. In how many ways can they stand in a row so that no two girls are together.

   (b) Find the inverse of the matrix:

   $\begin{pmatrix} a & b \\ c & d \end{pmatrix}$

13. Write short notes on any **two** of the followings:

   (i) Use of set theory in business

   (ii) Types of matrix

   (iii) Types of set

   (iv) Mathematical series