

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. $2 \times 7.5 = 15$

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. $1 \times 15 = 15$

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 $P(x) = 41 + 24x - 18x^2$.

18037(CV-II)/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. $2 \times 22\frac{1}{2} = 45$

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 n th 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