

Roll No.

Exam Code : M-21

Subject Code—52831

B.B.A. EXAMINATION

(Main & Re-appear)

(Batch 2017 Onwards)

(First Semester)

BUSINESS MATHEMATICS

BBA-103

Time : 3 Hours

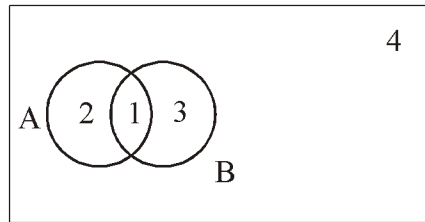
Maximum Marks : 70

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) If $A = \{1, 2, 4, 5\}$, $B = \{a, b, c, f\}$,
 $C = \{a, 5\}$, compute $A \cup C$, $(A \cup B) \times B$.
(b) Use the following Venn diagrams to show that for any *two* sets A and B :

$$(A \cap B)' = A' \cup B'$$



2. Out of 500 car-owners investigated, 400 owned Fiat cars and 200 owned Ambassador cars; 50 owned both cars. Is this data correct ?

Unit II

3. Prove that :

$$\log 2 + 16 \log \frac{16}{15} + 12 \log \frac{25}{24} + 7 \log \frac{81}{80} = 1$$

4. A man is employed on Rs. 1,200 per month and is promised an increase of Rs. 50 per year. Find the total amount he receives in 10 years and his pay in the last year.

Unit III

5. Find the values of n and r , if :

$${}^n P_r = {}^n P_{r+1} \text{ and } {}^n C_r = {}^n C_{r+1}$$

6. The first three terms in the expansion of $(1+ax)^n$ are $1+12x+64x^2$. Find n and a .

Unit IV

7. Show that the matrix :

$$A = \begin{bmatrix} 4 & -6 & 1 \\ 1 & 3 & 6 \\ 5 & 7 & 9 \end{bmatrix}$$

is invertible. Also find A^{-1} .

8. Find the maximum/minimum value of the following function :

$$\frac{x}{(x-1)(x-4)}, 1 < x < 4$$