

PARUL UNIVERSITY
FACULTY OF MANAGEMENT
BBA Winter 2018 - 19 Examination

Semester: 1

Subject Code: 06101105

Subject Name: Business Mathematics-I

Date: 14/12/2018

Time: 10:30 am to 01:00 pm

Total Marks: 60

Instructions

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 A) Multiple choice type questions: (Each of 1 mark)**(05)**

1. If $f(x) = 2x^3 + x$ then it is said to be _____ function.

a) even	c) odd
b) linear	d) composite
2. If $A = \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix}$ then the order of the matrix A = _____

a) 2	c) 3
b) 1	d) 4
3. If $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9\}$, $B = \{3, 5, 7\}$, $C = \{2, 4, 6\}$ then $A - (B \cup C) =$ _____

a) $\{1, 8, 9\}$	c) $\{1, 2\}$
b) $\{1, 2, 3\}$	d) $\{1, 2, 8, 9\}$
4. The Geometric Mean of 8 and 32 is _____

a) 17	c) 10
b) 25	d) 16
5. The value of ${}_8 C_2 =$ _____

a) 28	c) 18
b) 8	d) 38

B). Define the following. (Each of 1 mark)**(05)**

1. Define : Square Matrix
2. Define : Complement of a set
3. Define : One - One function
4. In how many ways a Committee of 4 Professors can be formed out of 11 professors?
5. Find the 9th term from the given Geometric Progressions: 2, 6, 18, 54, -----

C). Fill in the Blanks: (Each of 1 mark)**(05)**

1. If $A = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ then A is known as _____
2. If $A = \{x/x \in N, x \leq 5\}$, $B = \{x/x \in N, 2 \leq x \leq 8\}$ and $C = \{x/x \in N, x \leq 3\}$ then $B \cap C =$ _____
3. If $f: A \rightarrow B$; $f(x) = 2x$, $A = \{1, 2, 3\}$; $B = \{1, 2, 3, 4, 5, 6, 7\}$ then Range of f, $R_f =$ _____
4. The Arithmetic Mean for 8 and 32 is _____
5. The value of ${}_6 P_6 =$ _____

Q.2 Do as Directed:

A). If $A = \{ x/x \leq 9, x \in \mathbb{N} \}$, $B = \{ y / 3 \leq y \leq 7 \text{ \& } y \text{ is an odd number } \}$, $C = \{ z/1 < z < 7 \text{ \& } z \text{ is an even number } \}$ then Prove that $A - (B \cup C) = (A - B) \cap (A - C)$ (07)

B). If $A = \begin{bmatrix} 3 & -1 & 2 \\ 4 & 0 & 5 \\ 1 & -1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} -3 & 2 & 4 \\ 1 & 6 & 3 \\ 2 & 0 & 4 \end{bmatrix}$ then find AB . (08)

Q.3 Answer the following questions:

A). If $f, g: \mathbb{R} \rightarrow \mathbb{R}$ are defined by $f(x) = x^2 + 3x + 1$, $g(x) = 2x - 3$. Find $f \circ g$ and $g \circ f$. (07)

B). The Arithmetic Mean and Geometric Mean of two numbers are 25.5 and 12 respectively, find the numbers. (08)

Q.4 Attempt any two questions. (Each of 7.5 mark) (15)

1. In a Group of 100 People, 65 likes to play Cricket , 40 likes to play Tennis , 55 likes to play Volleyball. All of them like to play at least of the three games. If 25 likes to play Cricket and Tennis, 24 likes to play Tennis and Volleyball & 22 likes to play Cricket and Volleyball, then how many likes to play all of the three games?

2. If $A = \begin{bmatrix} 4 & 5 & 6 \\ 7 & 8 & 9 \\ 10 & 3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 3 & 1 \\ 4 & 5 & 7 \\ 8 & 9 & 3 \end{bmatrix}$, then find (1) $2A - 3B$, (2) $A - B$

3. The sum of all terms of an Arithmetic Progression is 60 whose common difference is 2 and its last term is 15, find its first term and number of terms.

4. In a group of students there are 4 girls and 6 boys. In How many ways a committee of five members can be formed such that there are at least 3 girls.