PARUL UNIVERSITY
FACULTY OF MANAGEMENT
BBA Summer 2018 - 19 Examination

Semester: 1   Date: 11/05/2019
Subject Code: 06101105   Time: 10.30 am to 1.00 pm
Subject Name: Business Mathematics-I   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 Do as Directed.

A).Multiple choice type questions/Fill in the blanks.   (Each of 1 mark)   **(05)**

1. If A= $\begin{bmatrix} 1 & 2 & 1 \\ 0 & 1 & 2 \end{bmatrix}$ then the dimension of A is

   a) 3x2   c) 3
   b) 2   d) 2x3

2 If $f(x) = x^2$ is
   a) linear function   c) even function
   b) odd function   d) none of these

3 The geometric mean of 5 and 20 is
   a)12.5   c) 100
   b)10   d) 4

4 The probability of getting 5 marks in an exam of 10 marks is
   a)1/11   c) 1/10
   b) 0   d) 1

5 The value of C_3^4 is
   a)12   c) 4
   b) 1   d) 3

B).Define the following. (Each of 1 mark)   **(05)**
   1. Function.
   2. Identity matrix of dimension .
   3. Power set
   4. Amount.
   5.Probability

C).Direct questions. (Each of 1 mark)   **(05)**
   1.Geometric mean and arithmetic mean are same.(T/F)
   2.Find the arithmetic mean of 1,2,6,7.

   3. If A= $\begin{bmatrix} 3 & 1 \\ 0 & -2 \end{bmatrix}$ find A^T.

   4. Find the value of $f(x) = 2x^2 - 5$ for $x = -1$.

   5.Find the probability of getting prime number if a dice is thrown for one time.

Q.2 Answer the following questions.

A).   (i) Let $f, g: R \to R$ are defined by f(x)=$x^2 + 3x - 1$ and $g(x) = 3x. Find\ fog\ and\ gof$ **(04)**

   (ii)Find the 10th term of the arithmetic progressions 2, 4, 6, ...   **(03)**

B).
   (i)IF A= $\begin{bmatrix} 1 & 2 & 1 \\ 1 & 3 & 0 \\ -1 & 3 & 4 \end{bmatrix}$ and B= $\begin{bmatrix} 3 & 2 & -1 \\ -2 & 3 & 3 \\ 0 & 0 & 0 \end{bmatrix}$.Find $2A - 2B\ and\ A + B$.
                                                                                                 (04)

(ii) If A={x / x<4,x∈N},B={y/ 1≤ y ≤ 8 and y is an odd number , y ∈N } ,C={z/ 1<z<5 and z is an even number , z ∈N } . $Verify\ A - (B \cup C) = (A - B) \cap (A - C)$. **(04)**

Q.3 Answer the following questions.

A).(i)Find the inverse of the matrix A= $\begin{bmatrix} 4 & 7 \\ 2 & 6 \end{bmatrix}$ **(04)**

(ii)The arithmetic mean of two numbers is 5 while the geometric mean is 3 .Find the two numbers **(03)**

B). (i)Find the product of the matrices A= $\begin{bmatrix} 3 & 1 \\ 1 & 2 \end{bmatrix}$ and B = $\begin{bmatrix} 1 & 2 & 1 \\ 0 & 1 & 2 \end{bmatrix}$ if possible ? **(04)**

(ii) Find the amount if Rs 20000 is invested at 10% p.a. for 2 years on compound interest. **(04)**

Q.4 Attempt any THREE questions. (Each of 5 mark) **(15)**

1. The sum of three numbers in a GP is 26 and their product is 216. find the numbers.

2. The 35th term of an A. P. is 69. Find the sum of its 69 terms.

3. In a pharmaceutical factory, machines A and B manufacture 40% and 60% of the total output. Of this production of tablets, machines A and B produce 5% and 10% defective tablets. A tablet is picked at random and is found to be defective. What is the probability that the tablet was produced by the machine A?

4. Solve the system of linear equation by using Cramer's Rule
$$4x - 3y = 11 \text{ and } 6x + 5y = 7$$