

PARUL UNIVERSITY
FACULTY OF MANAGEMENT
BBA Summer 2017 - 18 Examination

Semester: 1
Subject Code: 06101105
Subject Name: Business Mathematics-I

Date: 12/06/2018
Time: 10:30am to 01:00PM
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 $A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 0 \\ 1 & 1 & 7 \end{bmatrix}$ then the transpose of A = _____

a) $A^T = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 0 \\ 1 & 1 & 7 \end{bmatrix}$

c) $A^T = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 1 & 0 \\ 3 & 1 & 7 \end{bmatrix}$

b) $A^T = \begin{bmatrix} 1 & 0 & 1 \\ 2 & 1 & 1 \\ 3 & 0 & 7 \end{bmatrix}$

d) none of these

2 The nth term of a G.P. = _____

a) ar^{n-1}

c) ar^n

b) $a*r$

d) 0

3 If $U = \{1,2,3,4,5,6\}$ and $A = \{2,4\}$ then complement of A = _____

a) $\{1,2,3\}$

c) $\{2,3,4,5,6\}$

b) $\{2,4\}$

d) $\{1,3,5,6\}$

4 If $A = \begin{bmatrix} 2 & 3 \\ 7 & 18 \end{bmatrix}$ then the value of determinant of A, $|A| =$ _____

a) 10

c) 15

b) 14

d) 13

5. If $f: \mathbb{N} \rightarrow \mathbb{N}$, $f(x) = 5x-2$ and range of $f = \{3,8,13\}$ then the domain of $f =$ _____

a) $\{1,2,3\}$

c) $\{1,3\}$

b) $\{1,3,6\}$

d) $\{1,4,3\}$

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

1. Define: Null set
2. Find the value of n from ${}_nP_3 = 210$
3. In how many ways a committee of 4 professors can be formed out of 11 professors?
4. Define : Square Matrix
5. If the cost function is $C = 1200 - 45x + 2x^2$, then find the total cost for producing 25 units.

C).Direct questions. (Each of 1 mark)

(05)

1. If $A = \{ 1,2,3,4 \}$, $B = \{ 3,4,5 \}$ and $C = \{ 1,3,5 \}$, then find $A \cup (B \cap C)$.
2. Find 9P_4 and ${}_{12}C_4$
3. Find the inverse of $A = \begin{bmatrix} 2 & 3 \\ 4 & 10 \end{bmatrix}$
4. If the maximum Revenue is $R = 300$ units and the demand is $x = 30$, then find the price.
5. Find the A.M and G.M for 8 and 32.

Q.2Answer the following questions.

A).Solve the equation using Cramer's Rule:-

(07)

$$x+2y+3z = 14 ; 2x+y+z = 7 ; 5x+2y+z = 12$$

B).If the A.M and G.M of two numbers are 25.5 and 12 respectively then find the numbers.

(08)

Q.3Answer the following questions.

A.Using Matrix Inversion method, solve : $2x + 5y = 16 ; 3x + y = 11$

(07)

B.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 (1) there are at least 3 girls , (2) there are at the most 3 boys in the committee.

(08)

In the committee.

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

(15)

1If $U = \{ 1,2,3,4,5,6 \}$, $A = \{ 2,3,6 \}$, $B = \{ 3,5,6 \}$ then verify that $(A \cup B)' = A' \cap B'$

2If ${}^{10}C_{n+1} : {}^{10}C_n = 7 : 4$ then find n.

3If the sum of 6th terms of an A.P is 57 and the sum of its 10th term is 155 then find 20th term.

4A person pays Rs. 975 monthly instalments each less than the former by Rs. 5. The first Instalment is Rs. 100. In what time will the entire amount be paid?