

PARUL UNIVERSITY
FACULTY OF MANAGEMENT
BBA, Winter 2017 - 18 Examination

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

Date: 29/12/2017
Time: 2:00 pm to 4:30 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 Do as Directed.**A). Multiple choice type questions.****(05)**

1. (A') = _____.
 a) A
 b) A'
 c) U
 d) None of these
2. If $f(x) = 3, x \in N$ is a _____.
 a) Cost Function
 b) Constant Function
 c) Profit Function
 d) Equal Function
3. ${}^n P_r =$ _____.
 a) $\frac{r!}{(r-n)!}$
 b) $\frac{n!}{(n+r)!r!}$
 c) $\frac{n!}{(n-r)!}$
 d) $\frac{n!}{(n-r)!r!}$
4. What will be 5th term of progression 2, 6, 18...?
 a) 486
 b) 14
 c) 18
 d) 162
5. If a matrix A having order 3×2 then order of transpose of matrix A is _____.
 a) 2×3
 b) 2×2
 c) 3×3
 d) 3×2

B). Define the following.**(05)**

1. Infinite set
2. Intersection of two sets
3. Square Matrix
4. Diagonal Matrix
5. Arithmetic Progression

C). Direct questions.**(05)**

1. If $A = \{2,3,5\}, B = \{4,6\}, C = \{2,5,6\}$, then $A \times (B - C) =$ _____.
2. If $f(x) = 3x + 21$, then find $f(4)$.
3. Find ${}^6 P_4$.
4. Find Arithmetic mean of 10 and 16.
5. Find det (A) of matrix $A = \begin{bmatrix} -2 & 4 \\ 4 & 6 \end{bmatrix}$.

Q.2 Answer the following questions.

- A)** 1. Prove that $(A \cup B)' = A' \cap B'$ using Venn-diagram. **(04)**
2. The fixed cost in production of transistors is Rs, 2,00,000 and variable cost per unit is Rs.1, 000. If the selling price of a transistor is Rs. 1,500. Find (a) Cost function **(03)**
 (b) Revenue function.

- B).** 1. If $A = \begin{bmatrix} 4 & -2 \\ 4 & 3 \end{bmatrix}$, $B = \begin{bmatrix} -2 & 2 \\ 7 & 7 \end{bmatrix}$, then find AB and BA. (04)
2. The 4th term of Arithmetic progression is 19 and its 12th term is 51, find its 21st term. (04)

Q.3 Answer the following questions.

- A).** 1. In a group of 70 people, 45 speaks English and 33 speaks French and each person speaks at least one of two language. Find (a) How many speak both languages? (b) How many speak English only? (c) How many speak French only? (04)

2. If ${}^n P_3 = 210$ find the value of n . (03)

- B).** 1. If $A = \begin{bmatrix} 12 & -3 \\ 2 & 6 \end{bmatrix}$, Find Inverse matrix of A. (04)

2. If $f : R \rightarrow R$, $g : R \rightarrow R$ are defined respectively by $f(x) = x^2$, $g(x) = x + 4$. (04)

Find (a) fog (b) gof.

Q.4 Attempt any two questions. (15)

1. If $A = \{x / |x^2 - 1| < 10, x \in Z\}$, $B = \{x / |x - 1| < 2, x \in Z\}$, $C = \{x / |x| \leq 1, x \in Z\}$

Prove that (1) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(2) $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$

2. Find k if ${}^8 P_5 = {}^7 P_5 + k {}^7 P_4$.

3. Solve the following equations using Matrix inverse method : $x + y = 1$, $3x + 2y = 2$.

4. The first term of Geometric Progression is 3 and its last term is 768 and if the sum of all term of series is 1533, find the common ratio and number of terms.