

IMBA in FM/HRPA/BM/BEM (Rep) Sem.-1 Examination
BEM/HR/FM/BBA/CC-104

BM

Time : 2-30 Hours]

January-2025

[Max. Marks : 70

Q.1 Let $U = \{1,2,3,4,5,6,7,8,9,10\}$ be the universal set, and define the following sets: (14)

- $A = \{1,2,3,4\}$
- $B = \{3,4,5,6\}$
- $C = \{2,4,6,8\}$

Find:

1. The complement of set B (denoted 'B') relative to the universal set U.
2. The symmetric difference of sets A and C (denoted $A \Delta C$).
3. The union of sets A, B, and C (denoted $A \cup B \cup C$).

Q.2 A survey of 300 people showed that 180 people liked ice cream, 150 people liked cake, and 120 people liked both ice cream and cake. Additionally, 40 people liked neither ice cream nor cake. How many people liked only ice cream or only cake? (14)

Or

Q.2 In a group of 150 students, 90 students take French, 70 students take German, and 40 students take both French and German. It is also given that 20 students do not take either French or German. How many students take only French? (14)

Q.3 Plot the points with the following coordinates on a graph: (14)

- $P(-6,9)$
- $R(5,-7)$
- $Q(4,-6)$
- $S(0,-7)$

Or

(P.T.O)

Q.3 Plot the points with the following coordinates on a graph: (14)

- $P(-5, -8)$
- $R(12, 6)$
- $Q(6, -3)$
- $S(2, -8)$

Q.4 A. Find the 20th term of the series: (07)

$$1+3+9+27+\dots$$

B. Find the sum of the first 12 terms of the series: (07)

$$25+75+225+675+\dots$$

Or

Q.4 A. Find the sum of the first 10 terms of the series: (07)

$$16+12+8+4+\dots$$

B. Find the 7th term of the series: (07)

$$4+8+12+16+\dots$$

Q.5 A. Define the **inverse of a function**. For a given function $f(x)$, under what conditions will $f(x)$ have an inverse? Prove that if a function is **bijective**, it has an inverse. Provide an example and find the inverse function. (07)

B. Define a **function**. What are the key properties that distinguish a function from a general relation? Explain with an example. (07)

