2408000602021001
EXAMINATION FEBRUARY-MARCH 2024
BACHELOR OF COMMERCE (SECOND SEMESTER) (NEP)
MAJOR - STATISTICS FOR DATA SCIENCE – II LEVEL 2

[**Time: As Per Schedule]** **[Max. Marks:35]**

Instructions:

1. **Fill up strictly the following details on your answer book**
   a. Name of the Examination : **BACHELOR OF COMMERCE (SECOND SEMESTER) (NEP)**
   b. Name of the Subject : **STATISTICS FOR DATA SCIENCE – II LEVEL 2**
   c. Subject Code No : **2408000602021001**
2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

Student's Signature

Q.1 Answer the following questions. (Any Five) **10**

1. Define: Event
2. If $P(A) = 0.4, P(B) = 0.3$ and $P(A \cap B) = 0.12$ find $P\left(\frac{A}{B}\right)$.
3. Define: Continuous Random Variable
4. If four central movements are 0, 16, -64 and 642 respectively then find β_2.
5. If n and p are 10 and $\frac{1}{2}$ respectively in binomial distribution then find variance.
6. If $P(1) = P(2)$ for Poisson distribution then find variance.
7. Find the value of the average deviation if the standard deviation in a normal distribution is 5.

Q.2 (A) A box contains 6 black and 4 white balls. Two balls are drawn at random from find the probability of that **6**

I. Both are black balls.

II. Both are white balls.

III. Both are of different balls.

(B) For the following distribution calculate first four central moment. **7**

x	1	2	3	4	5	6
f	10	20	30	20	10	10

OR

(A) In an experiment two events A and B can happen. If $P(A) = 0.4, P(B) = x \; and \; P(A \cup B) = 0.7$, find the value of x when, **6**

I. A and B are mutually exclusive

II. A and B are independent

(B) The first four moment raw moment about 5 are 2, 20, 40 and 50 respectively. Then obtain first four central moment and it's mean and variance **7**

Q.3 (A) $fP(x = 1) = P(x = 2)$ for Poisson variable x then find $P(x \leq 2)$. **6**

(B) The probability of winning a match of India against Australia is $\frac{3}{5}$. They are going to play three matches. Find the probability that: **6**

a) India will win at least 1 match

b) India will win at the most 1 match.

OR

Write short note on any three from the following questions: **12**

1. Explain the term with example: (i) Mutually exclusive events
   (ii) Exhaustive events

2. Explain the term with example: (i) Independent events (ii) Sample Space

3. State difference between Probability Mass Function & Probability Density Function

4. Define Normal distribution? Write its characteristics.

5. Define Binomial distribution? State its properties.

*****