

RAN-2408000602021011**B.Com. (Data Analytics) (Sem.- II) Examination April - 2026****Major- Statistics For Data Analytics (Theory) Paper - II****[Total Marks: 35****સૂચના : / Instructions**

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the above details on your answer book
- (2) Sketch neat and labeled diagram wherever necessary.
- (3) Figures to the right indicate full marks of the question.
- (4) All questions are compulsory.

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Student's Signature

Q.1. Answer the following questions (ANY FIVE)**10**

1. Define conditional probability and state its formula.
2. Distinguish between discrete and continuous random variables.
3. If the mean of a Poisson distribution is 2.5, find its variance and standard deviation.
4. Write the relationship between raw moments and central moments.
5. In a binomial distribution, if $np = 12$ and $npq = 3$, find p .
6. Define probability density function (PDF).
7. Write any two properties of normal distribution.

Q.2. (A) A committee of 3 persons is to be selected at random from 6 men and 4 women.**07**

Find the probability that:

- i) The committee consists of exactly two women,
- ii) The committee has at least one man.

(B) The following table gives the frequency distribution of variable X. Calculate:**06**

- i) Mean
- ii) Variance
- iii) First four central moments

x	4	6	8	10	12
f	3	6	10	6	3

OR**Q.2. (A) A box contains 7 red, 5 blue and 3 green balls. Three balls are drawn at random.****07**

Find the probability that:

- i) All three balls are of different colours
- ii) At least two balls are red

(B) From the following distribution, calculate β_1 and β_2 and state whether the distribution is leptokurtic, mesokurtic or platykurtic.**06**

x	20	25	30	35	40
f	2	6	10	6	2

- Q.3.** (A) A hospital records that on an average 2 patients arrive at the emergency ward per hour. Assuming Poisson distribution, find the probability that in a given hour: **06**
- i) No patient arrives
 - ii) At least two patients arrive
- (B) The life (in hours) of a bulb is normally distributed with mean 1000 hours and standard deviation 100 hours. Find the probability that the life of a bulb is: **06**
- i) Between 900 and 1100 hours
 - ii) More than 1200 hours

OR

- Q.3.** **Write short notes on ANY THREE:** **12**
- 1. Skewness and Kurtosis.
 - 2. Probability Mass Function (PMF) and Probability Density Function (PDF).
 - 3. Poisson Distribution: characteristics and uses.
 - 4. Random experiment and Sample space with examples.
 - 5. Normal Distribution and its properties.