Regd. No:_____

2351/ STA M -2301

B.Sc (STAT) (Honours) U.G Examinations-05 MAY 2025

SEMESTER-II (REGULAR)

(Admitted Batch 2024-25 Only)

DESCRIPTIVE STATISTICS & PROBABILITY

TIME: 3Hrs | Max Marks:60 | Pass Marks:24

SECTION- A

Answer any FIVE of the following **5×4=20M**

1. Explain in brief about classification of data
2. Write a note on essential parts of a table.
3. Explain features of good average
4. Define Geometric Mean and harmonic mean.
5. Explain Sheppard's corrections for moments.
6. Explain about kurtosis
7. Define Axioms of probability.
8. State and prove addition theorem of probability for 2 units.
9. Define conditional event and conditional probability.
10. Explain about independent events.

SECTION- B

Answer ALL the following questions. **5×8=40M**

11. Explain various methods of collecting primary data.

(OR)

12. Construct a Bar Diagram to the data given below.

Year	Sales in (Lakhs)	Profit (in Lakhs)
2017	40	15
2018	45	18
2019	53	22
2020	48	13
2021	60	25

13. Define Arithmetic Mean and Explain its methods and properties.

(OR)

14. Calculate Median and Mode to the following data

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	12	24	53	32	15	10

15. Establish the relation between central and Non-central moments.

(OR)

16. Explain about Skewness and its methods.
17. State and prove addition theorem of probability for n units.

(OR)

18. State and prove Boole's inequalities.
19. State and prove Baye's Theorem.

(OR)

20. The probabilities of X, Y and Z becoming managers are 4/9, 2/9 and 1/3 respectively. The probabilities that the bonus scheme will be introduce if X,Y and Z becomes managers are 3/10,1/2 and 4/5 respectively.
    I. What is the probability that bonus scheme will be introduced and
    II. If the bonus scheme has been introduced, what is the probability the managers appointed was X

Regd. No:_____

2361/ STA M -2302

B.Sc (STAT)(Honours) U.G Examinations-06 MAY 2025

SEMESTER-II (REGULAR)

(Admitted Batch 2024-25 Only)

RANDOM VARIABLES & MATHEMATICAL EXPECTATIONS

TIME: 3 Hrs | Max Marks:60 | Pass Marks:24

SECTION- A

Answer any FIVE of the following questions. **5×4=20M**

1. Define Random variable and explain types of Random variables.
2. Define distribution function and states its properties.
3. Define bi-variate and random variables with examples.
4. Explain the concept of transformation of random variable.
5. Define mathematical expectations of a random variable and states its properties.
6. State and prove Cauchy-Schwartz inequality
7. Define MGF and CF.
8. State WLLN & SLLN.
9. Define Convergence in Probability.
10. Define i) Sample ii) Population with Examples

SECTION- B

Answer ALL the following questions. **5×8=40M**

11. Explain PDF & PMF.

(OR)

12. The Probability distribution of discrete r.v. is given below

X	-1	0	1	2	3	4
P(X)	k	k	2k	3k	2k	k

Find i) k ii) mean iii) variance

13. Explain Joint, marginal, conditional distribution and independence of random variables.

(OR)

14. The jpdf is f(x,y)= kxy, 0<x, y<1 Find k, marginal pdf's of x and y.
15. State and prove additive property of expectations.

(OR)

16. State and prove multiplicative property of expectations.
17. Define MGF and states its property.

(OR)

18. Derive the relation between moments and cumulants
19. Explain Liandberg – Levy, CLT and its applications.

(OR)

20. Explain Central limit Theorems.

Regd. No:_____

2336/ DSC M -2302

B.Sc (DATA SC)(Honours) U.G Examinations-06 MAY 2025

SEMESTER-II (REGULAR)

(Admitted Batch 2024-25 Only)

DESCRIPTIVE STATISTICS

TIME: 3 Hrs | Max Marks:60 | Pass Marks:24

SECTION- A

Answer any FIVE of the following questions. **5×4=20M**

1. Write merits and demerits of mean.
2. Write merits and demerits of median.
3. Define Central and Non- Central moments.
4. Explain about Kurtosis
5. Explain about Principal least squares
6. Explain Multiple Correlation
7. Define Regression Coefficients
8. Define Regression.
9. Explain The independence of attributes
10. Define order of class and class frequency.

SECTION- B

Answer ALL the following questions. **5×8=40M**

11. Explain methods of collecting primary data.

(OR)

12. Calculate Median and Mode to the following data

CI	40-50	50-60	60-70	70-80	80-90
Frequency	5	12	23	8	2

13. If first four raw moments are 5, 35, 70 and 180 respectively. Find four central moments..

(OR)

14. Explain various methods of measuring Skeweness and Kurtosis
15. Explain fitting of a second degree parabola by the method of least squares..

(OR)

16. Calculate Karl Pearson Correlation Coefficient the following data.

X	5	10	15	20	25	30	35	40
Y	2	5	10	8	14	18	26	20

17. Derive the regression lines of X on Y and Y on X

(OR)

18. Distinguish between correlation and regression.
19. What is consistency of data? Write the conditions part consistency in case of 3 attributes

(OR)

20. Explain various methods of measuring association.

Regd. No:_____

2362/ AI M -2302

B.Sc (AI)(Honours) U.G Examinations-06 MAY 2025

SEMESTER-II (REGULAR)

(Admitted Batch 2024-25 Only)

STATISTICAL METHODS & PROBABILITY DISTRIBUTIONS

TIME: 3 Hrs | Max Marks:60 | Pass Marks:24

SECTION- A

Answer any FIVE of the following questions. **5×4=20M**

1. Define Correlation and explain its types?
2. Explain Rank Correlation.
3. Explain about Principle of Least Squares
4. Explain Regression Lines.
5. Define Geometric Distribution and write its properties.
6. Explain Uniform distribution
7. Define Gamma Distribution and write its properties.
8. Define Beta Distribution and write its properties.
9. Define 1) Population 2) Sample
10. Explain Simple Random Sample.

SECTION- B

Answer ALL the following questions. **5×8=40M**

11. Explain the properties of Karl Pearson Correlation Coefficient.

(OR)

12. Calculate Karl Pearson Correlation Coefficient the following data.

X	5	10	15	20	25	30	35	40
Y	2	5	10	8	14	18	26	20

13. Explain fitting of a second degree parabola by the method of least squares.

(OR)

14. Explain fitting of exponential curves.
15. Define Binomial Distribution and write its properties.

(OR)

16. Define Poisson Distribution and write its properties.
17. Define Exponential Distribution and write its properties.

(OR)

18. Define Normal Distribution and writes its importance and also its important properties.

19. Explain principle steps in sample survey.

(OR)

20. Explain Sampling and Non – Sampling errors.

Regd. No:_____

2345/ STA M -2303

B.Sc (Data Sci)(Honours) U.G Examinations-07 May 2025

SEMESTER-II (REGULAR)

(Admitted Batch 2024-25 Only)

DESCRIPTIVE STATISTICS & PROBABILITY

TIME: 3 Hrs | Max Marks:60 | Pass Marks:24

PART-A

Answer any **FIVE** of the following questions **5X4=20M**

1. Write a note on essential parts of a table.
2. Write a short notes on Ogives
3. Write merits and demerits of Median.
4. Write merits and demerits of Mode.
5. Write a note on coefficient of variation.
6. Explain Sheppard's corrections for moments.
7. Define i) outcome ii) sample space iii) event
8. Define i) Exclusive Events ii) Equally likely Events
9. Explain about independent events.
10. State and prove multiplication theorem of probability for 2 events.

PART-B

Answer **ALL** the following questions **5X8=40M**

11. Explain methods of collecting primary data.

(OR)

12. Draw a Pie diagram to represent the data given below.

Head	Agriculture	Irrigation	Road & Building	Science & Technology	Others
Budget (In crores)	200	120	150	180	150

13. Define Arithmetic Mean and Explain its methods and properties.

(OR)

14. Calculate Median and Mode to the following data

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	12	24	53	32	15	10

15. Explain about Skewness and its methods.

(OR)

16. Calculate Quartile Deviation to the following data

Marks	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	8	23	58	30	15	10

17. State and prove addition theorem of probability for n events.

(OR)

18. State and prove Boole's inequalities.
19. State and prove Baye's Theorem.

(OR)

20. The probabilities of X, Y and Z becoming managers are 4/9, 2/9 and 1/3 respectively. The probabilities that the bonus scheme will be introduce if X,Y and Z becomes managers are 3/10,1/2 and 4/5 respectively.