NP – 824

IV Semester Degree Examination, June/July 2025
(NEP Scheme) (F+R)
(Open Elective)
STATISTICS
Quantitative Analysis Techniques

Time : 2½ Hours

Max. Marks : 60

Instructions : *1)* ***Scientific*** *calculators are* ***permitted.***
2) ***Graph sheets*** *are available on* ***request.***

PART – A

Answer **any 4** questions (**2** marks **each**). **(4×2=8)**

1. Define spurious correlation with an example.
2. What is scatter diagram ?
3. Define linear programming problem.
4. What is an assignment problem ?
5. What is Knowledge Discovery in Databases (KDD) ?
6. Define machine learning.

PART – B

Answer **any 4** questions (**5** marks **each**). **(4×5=20)**

7. What are the differences between correlation and regression ?
8. Compute Spearman's rank correlation coefficient for the given data :

Marks in Maths	40	66	75	85	50
Marks in Statistics	38	70	65	50	80

P.T.O.

9. Find IBFS using North-West corner method for the given data :

	D_1	D_2	D_3	Supply
O_1	16	10	19	30
O_2	10	12	15	40
O_3	22	9	42	25
Demand	18	42	35	

10. Write a short note on :

i) Degeneracy in LPD.

ii) Optimal solution in LPD.

iii) Infeasible solution in LPD.

iv) Balanced transportation problem.

v) Unbalanced assignment problem.

11. Discuss the differences between predictive and descriptive models.

12. Discuss the role of artificial intelligence in data mining.

PART – C

Answer **any 4** questions (**8** marks **each**). **(4×8=32)**

13. Calculate Karl Pearsons correlation coefficient for the given data.

Advertising expenditure (in lakhs)	Sales revenue (in lakhs)
10	40
15	45
20	60
25	80
30	85
35	90

14. Obtain two regression equations.

Training hours	2	4	6	8	10	12
Performance score	60	62	70	75	90	95

15. Solve the following assignment problem using Hungarian method.

	M_1	M_2	M_3	M_4
J_1	10	7	8	5
J_2	15	11	9	8
J_3	14	13	11	12
J_4	12	19	11	10

16. Explain the steps involved in finding Initial Basic Feasible Solution (IBFS). Using Vogel's approximation method in a transportation problem.

17. Discuss in details the challenges in data mining.

18. Explain the full architecture of a data mining system.
