QP CODE: D3BCM2405	(Pages: 2)	Reg. No	:	....
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THIRD SEMESTER FYUGP EXAMINATION, NOVEMBER 2025

Discipline Specific Core (DSC) Courses - Minor

COM3MN210 : Data analytics with Statistical software

(Credits: 4)

Time: 2 Hours	Maximum Marks: 70

Section A

Answer the following questions. Each carries 3 marks (Ceiling: 24 marks)

1.	Define the “Model Evaluation” phase in predictive modeling.	BL2	CO1, CO2, CO3
2.	Show how to compute expected frequencies in a chi-square test when a coin is tossed 100 times.	BL2	CO1, CO3
3.	Interpret a t-test result if the calculated t-value is greater than the critical t-value at 5% significance level.	BL2	CO1, CO3
4.	What do you mean by regression analysis?	BL1	CO1, CO2, CO3
5.	What makes SPSS different from other software of data analysis?	BL1	CO1, CO2, CO3
6.	List three ways in which SPSS is used in business decision-making.	BL2	CO1, CO2, CO3
7.	Explain the term "level of significance."	BL2	CO1, CO2
8.	State the null and alternative hypotheses for testing whether the average score of a class is equal to 50. Also mention the critical region at 5% level of significance for a two-tailed test.	BL2	CO1, CO3
9.	Explain how predictive modeling helps in solving customer churn problems in businesses.	BL3	CO1, CO2, CO3
10.	Write how to open a new data file in SPSS.	BL3	CO1

Section B

Answer the following questions. Each carries 6 marks (Ceiling: 36 Marks)

11.	Identify and explain the main features of SPSS that make it useful for business data analysis.	BL2	CO1, CO2, CO3
12.	Explain the concept of eigenvalues and eigenvectors in PCA.	BL2	CO1, CO2, CO3
13.	Describe the procedure for performing a two-way ANOVA.	BL1	CO1, CO3

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14.	Illustrate with an example how missing values can impact business decision-making if not treated.	BL2	CO1, CO2, CO3
15.	Calculate Karl Pearson's coefficient of correlation from the following data: X 10 12 18 24 30 Y 20 22 30 35 40	BL2	CO1, CO3
16.	Explain why data preparation is considered the foundation of predictive modeling.	BL2	CO1, CO2, CO3
17.	A store manager records weekly sales under three promotional schemes: Scheme A, Scheme B, and Scheme C. Sales data (in ₹ thousands) for 3 weeks under each scheme are: • A: 50, 52, 48 • B: 55, 54, 56 • C: 53, 52, 51 Construct an ANOVA table and test at 5% significance level whether the schemes produce different average sales $(F_{0.05}(2,6) = 5.14)$.	BL3	CO1, CO3
18.	Two sets of students are given marks in a test. Explain the steps to test whether their mean scores differ significantly using an independent t-test.	BL3	CO1, CO3

Section C

Answer any one question. Each carries 10 marks (1 x 10 = 10 Marks)

19.	Design a framework to map business problems to appropriate predictive modeling techniques. Provide examples and justify your choices	BL3	CO1, CO2, CO3
20.	You are given the following dataset of Sales Employees in a Retail Chain. You are expected to write the steps to enter them in SPSS.	BL3	CO1, CO2, CO3

ID	Gender	Age	Region	Monthly Sales (₹)	Working Hours/Week	Training Completed (Yes/No)	Incentives Earned (₹)
1	Male	30	North	52,000	42	Yes	5,000
2	Female	27	East	48,500	38	No	3,000
3	Male	35	South	65,000	44	Yes	6,500
4	Female	29	West	56,200	40	Yes	4,200
5	Male	32	North	50,800	39	No	2,800

CO : Course Outcome

BL : Bloom's Taxonomy Levels (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)