

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Fourth Semester

Artificial Intelligence and Data Science

AD3491–Fundamentals of Data Science and Analytics

Regulations - 2021

Duration : 3 Hrs

Maximum: 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	Define data science.	RE	1	2
2.	How do you retrieve data in data science process?	UN	1	2
3.	What is ordinal measurement?	RE	2	2
4.	How do you describe correlation on a scatterplot?	UN	2	2
5.	Define standard error of the mean.	RE	3	2
6.	Discuss Z-test for a population mean.	RE	3	2
7.	List the applications of T-test.	RE	4	2
8.	Compare and contrast one-way ANOVA and two-way ANOVA.	UN	4	2
9.	Distinguish between predictive analysis and machine learning.	UN	5	2
10.	How does Netflix use predictive analysis?	UN	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Give the description about Data science and its applications.	UN	1	13
	Or			
	b Explain in detail about data design process.	UN	1	13
12.	a Build the frequency distribution are interpreted by others.	AP	2	13

Or

- b GRE scores for a group of graduate school applicants are distributed as follows: AP 2 13

GRE	F
725-749	1
700-724	3
675-699	14
650-674	30
625-649	34
600-624	42
575-599	30
550-574	27
525-549	13
500-524	4
475-499	2

Convert the distribution of GRE scores shown to a cumulative frequency distribution and cumulative percent.

13. a Among 100 couples who had undergone marital counselling, 60 couples described their relationships as improved, and among this latter group, 45 couples had children. The remaining couples described their relationships as unimproved, and among this group, 5 couples had children. (Hint: Using a frequency analysis, begin with the 100 couples, first branch into the number of couples with improved and unimproved relationships, then under each of these numbers, branch into the number of couples with children and without children. Enter a number at each point of the diagram before proceeding.) a. What is the probability of randomly selecting a couple who described their relationship as improved? b. What is the probability of randomly selecting a couple with children? c. What is the conditional probability of randomly selecting a couple with children, given that their relationship was described as improved? AP 3 13

Or

- b Develop in detail about sampling distribution and creating sampling distribution in inferential statistics. AP 3 13
14. a Problem Statement:
The marks of boys and girls are given: Boys: 12, 14, 10, 8, 16, 5, 3, 9, and 11 Girls: 21, 18, 14, 20, 11, 19, 8, 12, 13, and 15, Is there any significant difference between marks of males and females i.e. population means are different. Apply two-sample and T-test. AP 4 13

Or

- b Blood pressure of 8 patients are before and after are recorded: Before: 180, 200, 230, 240, 170, 190, 200, and 165, After: 140, 145, 150, 155, 120, 130, 140, and 130 Is there any significant difference between BP reading before and after. Apply two sample T-test. AP 4 13

15. a How do you select the least square problem in python? What is least square method in python? Analyze. AN 5 13
- Or
- b Can you analyze what happens when survival analysis is done in data science? AN 5 13

*PART – C (Marks 1*15 = 15)*

<i>Q.No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Apply a scatterplot for creating greeting card exchange.	AP	3	15
		Or			
	b	In a business application, an R&D researcher might test two different processes of creating a product to see if one process is better than the other in terms of cost efficiency. How effective is ANOVA for this? Identify.	AP	5	15