

QP CODE: D2BCA2502	(Pages: 2)	Reg. No :
		Name :
SECOND SEMESTER FYUGP EXAMINATION, APRIL 2026 (Regular/Improvement/Supplementary) Discipline Specific Core (DSC) Courses - Major BCA2CJ102 : STATISTICAL FOUNDATION FOR COMPUTER APPLICATIONS (Credits: 4)		
Time: 2 Hours	Maximum Marks: 70	
Section A Answer the following questions. Each carries 3 marks (Ceiling: 24 marks)		
1. Define primary data and secondary data with examples.	BL1	CO1
2. If the R^2 value is 0.85, what does it tell us about the model's performance?	BL1	CO3
3. Explain the significance of the regression coefficients in the equation $Y = a + bX$.	BL2	CO3
4. In a game, a spinner lands on one of 4 colors: Red, Blue, Green, or Yellow. If a single spin is performed, are these events mutually exclusive and exhaustive? Justify your answer.	BL3	CO4
5. A box contains red, blue, and green balls. If two balls are drawn randomly, write the sample space.	BL1	CO4
6. If a coin is tossed 3 times, how many outcomes are possible in the sample space? List them.	BL2	CO4
7. Define the classical approach to probability with an example.	BL2	CO4
8. How does the probability of a Type I error relate to the significance level (α)?	BL1	CO5
9. How does the probability density function (PDF) of a continuous distribution differ from the probability mass function (PMF) of a discrete distribution?	BL1	CO4
10. What is the purpose of One-Way ANOVA?	BL1	CO4
Section B Answer the following questions. Each carries 6 marks (Ceiling: 36 Marks)		
11. The sum and sum of squares corresponding length X in (cms.) and weight Y (in gms.) of 50 tapioca tubers are given below : $\sum X = 22, \sum X^2 = 902.8, \sum Y = 261, \sum Y^2 = 1457.6$ Which is more varying, the length or weight?	BL3	CO2
12. What are the conditions for a good estimator? Differentiate between estimate, estimator, and estimation with suitable examples.	BL2	CO4
(PTO)		

13. For the data given below obtain the correlation coefficient between the average price and demand of a particular commodity in a region.

BL2 CO3

Average price	11	19	15	13	17
Demand	30	18	24	29	24

14. In a factory, 80% of the workers wear helmets and 50% wear gloves. If 40% of the workers wear both helmets and gloves, what is the probability that a randomly chosen worker wears at least one of these safety measures?

BL3 CO5

15. A drug test is 95% accurate for detecting drug users and 90% accurate for detecting non-users. If 5% of a population are drug users, what is the probability that a person who tests positive is actually a drug user?

BL2 CO5

16. A factory produces rods with lengths normally distributed around a mean of 50 cm and a standard deviation of 3 cm. Find the probability that a randomly selected rod has a length:

BL3 CO6

(a) Greater than 55 cm (b) Between 47 cm and 53 cm

17. A call center receives an average of 5 calls per hour. Assume the number of calls follows a Poisson distribution. Find the probability that the center receives:

BL3 CO6

a) Exactly 3 calls in an hour b) At least 2 calls in an hour

18. A basket contains 20 bad oranges and 80 good oranges. Three are drawn at random from this basket. Find the probability that of three (1) exactly two (2) at least one and (3) utmost two are good oranges

BL3 CO5

Section C

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

19. Calculate mean, median and mode.

BL3 CO1

Marks (above)	80	70	60	50	40	30	20	10	0
No. of students	0	52	123	154	166	190	215	235	250

20. a) One bag contains 4 white and 2 black balls. Another contains 3 white and 5 black balls. One ball is drawn from each bag. Find the probability that both are of same colour.

BL3 CO5

b) A certain player say X, is known to win with probability 0.3 if the track is fast and 0.4 if the track is slow. For Monday there is a 0.7 probability of a fast track and 0.3 probability of a slow track. What is the probability that player X will win on Monday.

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