Course Code: 1930004





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II B.Tech I Sem Supply End Examination, October 2021 PROBABILITY AND STATISTICS (CIVIL)

Time: 3 Hours.

Max. Marks: 70

	-	4	
	a		
they become M.D are 0.02, 0.03 and 0.04, respectively. If it is known that the bonus scheme is implemented, find the probabilities that A, B, and C to become	The probability that A, B, C to become M.D of a factory are respectively $\frac{5}{10}$, $\frac{3}{10}$ and $\frac{2}{10}$. The probabilities that bonus scheme will be implemented by them if		Note: 1. Answer any FIVE questions. 2. Each question carries 14 marks and may have a, b as sub questions.

- CO1 BL5
- Ь A card is drawn from a well shuffled pack of cards. What is the probability that it is either a spade or ace? 7M
- a 5 Define (i) axiomatic definition of probability. (ii) conditional probability(iii) A,B,C are aiming to shoot a balloon .A will succeed 4 times out 5 attempts .The independent events (iv) mutually exclusive events 7M 7M CO1 CO1

BL3 BL1

2

- hit the balloon. aim the balloon simultaneously, then find the probability that at least two of them chance of B to shoot the balloon is 3 out of 4 and that of C is 2 out of 3. If the three
- ω a) Suppose 2% of the people on the average are left-handed. Find i) the probability that 3 or more people are left-handed ii) the probability that at most one is left-7M C02
- 6 Assuming that the chance of an individual being literate is 1/5 and assuming 100 investigators each take 10 individuals to see whether they are literate, how many investigators report 8 or more were literate. 7M

C02

BL4

BL3

8

4 a 6 Derive mean and variance of a Gamma Distribution Find Mean, Median, Mode of a continuous random variable X having the density function $f(x) = \begin{cases} \frac{1}{2} \sin x & \text{if } 0 \le x \le \pi \end{cases}$ 7M 7M CO3 C02 BL5 BL3

And also find the probability that the random variable lie between 0 and $\frac{\pi}{2}$

(0, else where

- 5 a) If "x" is a Poisson vitiate such that $3P(x=4) = \frac{1}{2}P(x=2) + P(x=0)$. Find ii) $P(x \le 2)$. 7M CO3 BL3
- 6) If X is a Normal Variable with mean 30 and variance 25 then find

7M

CO3

BL3

(i) $P(26 \le X \le 40)$ (ii) $P(X \ge 45)$

Final: 29-10-21

MLRS-R19

6 a) Determine the regression equation of Y on X from the data given below.

43	37	45	43	38	40	Amount demand(Y)
15	16	12	13	12	10	Price (Rs.) (X)

7M .

C04

BL3

Fit a curve from the following table of the form y=A x^B

7M

C04

BL3

A sample of 12 fathers and their elder sons gave the following data about their elder sons. Calculate the rank correlation Coefficient 7M

C04

BL₅

Sons 68 66 68	Father 65 63 67
8 65	7 64
69	68
66	62
68	70
65	66
71	68
67	67
68	69
70	71

6 A study shows that 16 of 200 Tractor's produced on one assembly line required extensive adjustments before they could be shipped, while the same was true for 14 of 400 tractors produced on another assembly line. At the 0.01 level of superior work? significance, does this support the claim that the second production line does

ZM

CO3

BL3

- a) 6) Two sets of 100 students each were taught to read by two different methods. After the instructions were over , a reading test given to them revealed that $\overline{x_1} = 73.4$, $\overline{x_2} = 70.3$, $s_1 = 8$ $s_2 = 10$. Test the hypothesis that $\mu_1 = \mu_2$.
- Pumpkins were grown under two experimental conditions. Two random samples as 0.8 and 0.5 respectively. Assuming that the weight distributions are normal, of 11 and 9 pumpkins. Show the sample standard deviations of their weights test hypothesis that the true variances are equal.

7M CO5 BL5

7M

CO5

BL3

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