Shri Sringeri Sharada Peetham
Jyothy Charitable Trust®
Jyothy Institute of Technology
Thataguni, off Kanakapura road, Bengaluru-560082
(Approved by The All India Council for Technical Education (AICTE) - New Delhi;
Affiliated to VisvesvarayaTechnological University(VTU), Belagavi;
ECE, CSE, ISE, CV Accredited by National Board of Accreditation (NBA) -New Delhi)

Department of Mathematics

Course: Mathematics -III	Assignment-2	Program & Semester: BE- III
Course Code: BCS301	Issued Date: 17-12-2025	Topics Covered: Module- 3[half],4 & 5

	Questions	CO's/RBT
1.	One type of aircraft is found to develop engine trouble in **5** flights out of a total of **100** and another type of aircraft, it was found to develop same engine trouble in **7** flights out of **200** flights. Is there a significant difference in the two types of aircrafts as far as engine defects are concerned? Test at **5%** significance Level in both tailed test.	CO4/L1,L2
2.	The mean height of two large samples of **1000** and **2000** members are **168.75cms** and **170cms** respectively. Can the samples be regarded as drawn from the same population of standard deviation **6.25 cms**?	CO4/L1,L2
3.	Ten individuals are chosen at random from a population and their heights in inches are found to be **63,63,66,67,68,69,70,70,71,71**. Test the hypothesis that the mean height of the population is **66** inches **($t_{0.05}$ for 9 d.f =2.262).**	CO5/L1,L2
4.	Two horses A and B were tested according to the time (in seconds) to run a particular race with the following result. Test whether you can discriminate between the two horses. **($t_{0.05}$ = 2.2 and $t_{0.02}$ = 2.72 for 11 d. f)** Horse A: 28, 30, 32, 33, 33, 29, 34 Horse B: 29, 30, 30, 24, 27, 29	CO5/L1,L2
5.	Eleven students were given a test in "Mathematics". They were given a month's further tuition and a second test of equal difficulty was held at the end of it. Do the marks give the evidence that the students will be benefitted by extra coaching. Given that **($t_{0.02}$ for 20 d.f =2.528).** Roll No: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 Marksin 1st Test: 23, 20, 19, 21, 18, 20, 18, 17, 23, 16, 19 Marksin 2nd Test: 24, 19, 22, 18, 20, 22, 20, 20, 28, 20, 17	CO5/L1,L2
6.	A random sample of size **64** is taken from an infinite population having mean **112** and variance **144**. Find the probability of getting the sample mean $\bar{X}$ greater than **114.5.** Also state Central limit theorem.	CO5/L1,L2
7.	The number accidents per day (x) as recorded in a textile industry over a period of **400** days is given. Test the hypothesis that the data fits a **Poisson** distribution. (Given $\chi^2_{0.05}$ for 4 d.f = 9.49) No of accidents per day (x): 0, 1, 2, 3, 4, 5 Frequency (f): 173, 168, 37, 18, 3, 1	CO5/L1,L2

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8.	Three types of fertilizers are used on three groups of plants for 5 weeks. Check if there is a difference in the mean growth of each group using the data given below by applying one-way ANOVA test at 5% level of significance. Given that F at 5% for d.f (2,15)= 3.68 F-1: 6, 8, 4, 5, 3, 4 F-2: 8, 12, 9, 11, 6, 8 F-3: 13, 9, 11, 8, 7, 12	CO6/L1,L2
9.	Set up Two way Analysis of variance table for the following per acre production data for three varieties of wheat, each grown on 4 different plots and state wheather there is a difference in all three varieties of wheat as far as its quality is concerned at 5 % level of significance. F_r= at 5% for d.f (3,6)=4.76 & F_c = at 5% for d.f (6,2)=19.33 Per acre production data Plot of Land / Variety of Wheat: A, B, C 1: 6, 5, 5 2: 7, 5, 4 3: 3, 3, 3 4: 8, 7, 4	CO6/L1,L2
10.	Analyze and interpret the following statistics concerning output of wheat for field obtained as result of experiment conducted to test for four varieties of wheat viz A,B,C and D under latin square design. Given that $F_r = F_c = F_t$ at 5% for d.f (3,9)=3.86 C 25, B 23, A 20, D 20 A 19, D 19, C 21, B 18 B 19, A 14, D 17, C 20 D 17, C 20, B 21, A 15	CO6/L1,L2

Course Outcomes

CO4: Use statistical methodology and tools in the engineering problem-solving process.
CO5: Compute the confidence intervals for the mean of the population.
CO6: Apply the ANOVA test related to engineering problems.

HOD

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