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| Hall Ticket Number : | | | | | | | | | |
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Code: 5GC42

II B.Tech. II Semester Supplementary Examinations December 2022

Probability & Statistics

(Common to CE, ME & CSE)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

Marks CO BL

UNIT-I

1. If $P(A) = 1/4$, $P(B) = 1/3$ and $P(A \cup B) = 1/2$ then find $P(A/B)$, $P(B/A)$, $P(A \cap B')$ and $P(A/B')$. 14M 1 L2

OR

2. State and prove Baye's theorem 14M 1 L2

UNIT-II

3. Ten coins are throw simultaneously. Find the probability of getting at least (i) seven heads (ii) six heads 14M 2 L1

OR

4. If the probability of a bad reaction from a certain injection is 0.001, determine the chance that out of 2000 individuals more than two individuals will get a bad reaction. 14M 2 L4

UNIT-III

5. If we can assert with 95% that the maximum error is 0.05 and P is 0.2. Find the size of the sample. 14M 3 L2

OR

6. Find 95% confidence limits for the mean of a normality distributed population from which the following sample was taken 15,17,10,18,16,9,7,11,13,14. 14M 3 L2

UNIT-IV

7. A random sample of 10 boys had the following I.Qs: 70, 120, 110, 101, 88, 83, 95, 98, 107, and 100. Do these data support the assumption of population mean I.Q of 100? 14M 4 L4

OR

8. A random sample of 100 recorded deaths in a country showed an average life span of 71.8 years. Assuming a population standard deviation of 8.9 years, does this seem to indicate that the mean life span today is greater than 70 years? Use a 0.05 level of significance. 14M 4 L4

UNIT-V

9. The measurements of the output of two units have given the following results. Assuming that both samples have been obtained from the normal populations at 10% significant level, Test whether the two populations have the same variance

| | | | | | |
|--------|------|------|------|------|------|
| Unit-A | 14.1 | 10.1 | 14.7 | 13.7 | 14.0 |
| Unit-B | 14.0 | 14.5 | 13.7 | 12.7 | 14.1 |

14M 4 L4

OR

10. 4 coins were tossed 160 times and the following results were obtained,

| | | | | | |
|--------------|----|----|----|----|---|
| No, of Heads | 0 | 1 | 2 | 3 | 4 |
| Frequency | 17 | 52 | 54 | 31 | 6 |

Under the assumption that coins are unbiased, find the expected frequencies of 0,1,2,3,4 heads and test the goodness of fit for $\alpha = 0.05$

14M 4 L4
