Code No: RR220105 | RR | SET-1

B.Tech II Year - II Semester Examinations, April/May-2012
PROBABILITY AND STATISTICS
(COMMON TO CSE, IT, ME, AME, CHEM)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) If A and B are mutually exclusive events such that P(A) = 4 P(B) and $A \cup B = S$, then find

i) $P(A \cap B^C)$ ii) $P(A \cap B)$ iii) $P(A^C \cup B)$

b) If A and B are independent events, then prove that A and B^C are independent. [16]

2.a) A sample of 4 items is selected at random from a box containing 12 items of which 5 are defective find the expected number of defective items

b) Among the items produced in a factory 5% are defective. Find the probability that a sample of 8 contains

i) exactly 2 defective items.
ii) greatly than or equal to 7 defective items.
iii) at least one defective item. [16]

3.a) Average number of accidents on any day on a national high way is 1.8. Determine the probability that the number of accidents are

i) At least one ii) At the most one.

b) Students of a class were given an examination. Their marks were found to be normally distributed with mean 55 marks and standard deviation5. Find the number of students who get the marks more than 60 if 500 students write the examination. [16]

4. A population consists of six numbers 4, 8, 12, 16, 20, 24. Consider all sample of size two which can be drawn without replacement from this population. Find

i) The population mean
ii) The population standard deviation
iii) The mean of the sampling distribution of means
iv)The standard deviation of the sampling distribution of means. [16]

5.a) It is desired to estimate the mean time of continuous use until an answering machine will first require service. If it can be assumed that $\sigma = 60$ days, how large a sample is needed so that one will be able to assert with 90% confidence that the sample mean is off by at most 10 days.

b) An ambulance service claims that it takes on the average less than 10 minutes to reach its destination in emergency calls. A sample of 36 calls has a mean of 11 minutes and variance 16 minutes. Test the claim at 0.05 level of significance. [16]

6.a) The standard deviations of two samples are 8 and 12. Samples sizes are 200 and 100. Find the standard error of the difference between the means and also find the confidence interval at 0.05 level. Means of the sample are 60, 50 respectively.

b) In a sample of 600 students of a certain college 400 are found to use ball pens. In another college from a sample of 900 students 450 were found to use ball pens. Test whether 2 colleges are significantly different with respect to the habit of using ball pens. [16]

7. Two independent samples of 8 and 7 times respectively has the following values. Is the difference between the means of sample significant? [16]

Sample I	11	11	13	11	15	9	12	14
Sample II	9	11	10	13	9	8	10	-

8. Find the Coefficient of Correlation between the two subjects and the two lines of Regression. [16]

Marks in Maths	75	30	60	80	53	35	15	40	38	48
Marks in Statistics	85	45	54	91	38	63	35	43	45	44

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Code No: RR220105 | RR | SET-2

B.Tech II Year - II Semester Examinations, April/May-2012
PROBABILITY AND STATISTICS
(COMMON TO CSE, IT, ME, AME, CHEM)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) Average number of accidents on any day on a national high way is 1.8. Determine the probability that the number of accidents are
i) At least one ii) At the most one.

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2. A population consists of six numbers 4, 8, 12, 16, 20, 24. Consider all sample of size two which can be drawn without replacement from this population. Find
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5. Two independent samples of 8 and 7 times respectively has the following values. Is the difference between the means of sample significant? [16]

Sample I	11	11	13	11	15	9	12	14
Sample II	9	11	10	13	9	8	10	-

6. Find the Coefficient of Correlation between the two subjects and the two lines of Regression. [16]

Marks in Maths	75	30	60	80	53	35	15	40	38	48
Marks in Statistics	85	45	54	91	38	63	35	43	45	44

7.a) If A and B are mutually exclusive events such that P(A) = 4 P(B) and $A \cup B = S$, then find

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8.a) A sample of 4 items is selected at random from a box containing 12 items of which 5 are defective find the expected number of defective items

b) Among the items produced in a factory 5% are defective. Find the probability that a sample of 8 contains

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Code No: RR220105 | RR | SET-3

B.Tech II Year - II Semester Examinations, April/May-2012
PROBABILITY AND STATISTICS
(COMMON TO CSE, IT, ME, AME, CHEM)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1.a) It is desired to estimate the mean time of continuous use until an answering machine will first require service. If it can be assumed that $\sigma = 60$ days, how large a sample is needed so that one will be able to assert with 90% confidence that the sample mean is off by at most 10 days.

b) An ambulance service claims that it takes on the average less than 10 minutes to reach its destination in emergency calls. A sample of 36 calls has a mean of 11 minutes and variance 16 minutes. Test the claim at 0.05 level of significance. [16]

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Sample I	11	11	13	11	15	9	12	14
Sample II	9	11	10	13	9	8	10	-

4. Find the Coefficient of Correlation between the two subjects and the two lines of Regression. [16]

Marks in Maths	75	30	60	80	53	35	15	40	38	48
Marks in Statistics	85	45	54	91	38	63	35	43	45	44

5.a) If A and B are mutually exclusive events such that P(A) = 4 P(B) and $A \cup B = S$, then find

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Code No: RR220105 | RR | SET-4

B.Tech II Year - II Semester Examinations, April/May-2012
PROBABILITY AND STATISTICS
(COMMON TO CSE, IT, ME, AME, CHEM)

Time: 3 hours **Max. Marks: 80**

Answer any five questions
All questions carry equal marks

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1. Two independent samples of 8 and 7 times respectively has the following values. Is the difference between the means of sample significant? [16]

Sample I	11	11	13	11	15	9	12	14
Sample II	9	11	10	13	9	8	10	-

2. Find the Coefficient of Correlation between the two subjects and the two lines of Regression. [16]

Marks in Maths	75	30	60	80	53	35	15	40	38	48
Marks in Statistics	85	45	54	91	38	63	35	43	45	44

3.a) If A and B are mutually exclusive events such that P(A) = 4 P(B) and $A \cup B = S$, then find

i) $P(A \cap B^C)$ ii) $P(A \cap B)$ iii) $P(A^C \cup B)$

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