

UNIT-III

CONTINUOUS DISTRIBUTIONS AND SAMPLING

S.No	Questions	BT	CO	PO
Part – A (Short Answer Questions)				
1	State the conditions under which Normal distribution is a limiting case of Binomial.	L1	CO3	PO1
2	If X is a Normal variate with mean 30 and standard deviation 5. find $P(26 \leq X \leq 40)$.	L2	CO3	PO2
3	Define Normal distribution.	L1	CO3	PO1
4	Define statistic and parameter.	L1	CO3	PO1
5	Find the value of the finite population correction factor for $n=10$ and $N=100$.	L3	CO3	PO2
6	How many different samples of size 2 can be chosen from a finite population of size 25.	L3	CO3	PO2
7	Write the test statistic for F-distribution	L1	CO3	PO1
8	The variance of a population is 2. The size of the sample collected from the population is 169. What is the standard error of mean.	L3	CO3	PO2
9	Write test statistic for t- distribution for difference of mean.	L3	CO3	PO2
10	State central limit theorem.	L3	CO3	PO2
Part – B (Long Answer Questions)				
11	a) If X is a Normal variate with mean 30 and standard deviation 5. Find the probabilities that i. $26 \leq X \leq 40$ ii. $X \geq 45$	L4,L5	CO3	PO3
	b) If the masses of 300 students are normally distributed with mean 68 kgs and standard deviation 3kgs how many students have masses i. Greater than 72kgs ii. Less than or equal to 64 kgs	L2,SL3	CO3	PO3

12	a)	A sample of 26 bulbs gives a mean life of 990 hours with a standard deviation of 20 hours. The manufacturer claims that the mean of bulbs is 1000hrs. is the sample not up to Standard.	L3	CO3	PO2
	b)	The means of two random samples of sizes 9 and 7 are	L3	CO3	PO2

		196.42 and 198.82 respectively. The sum of the squares of the deviations from the mean are 26.94 and 18.73 respectively. Can the sample be considered to have been from the same normal population																									
13	a)	Memory capacity of 10 students were tested before and after training																									
		<table border="1"><tr><td>Before</td><td>12</td><td>14</td><td>11</td><td>8</td><td>7</td><td>10</td><td>3</td><td>0</td><td>5</td><td>6</td></tr><tr><td>After</td><td>15</td><td>16</td><td>10</td><td>7</td><td>5</td><td>12</td><td>10</td><td>2</td><td>3</td><td>8</td></tr></table>	Before	12	14	11	8	7	10	3	0	5	6	After	15	16	10	7	5	12	10	2	3	8	L3	CO3	PO2
		Before	12	14	11	8	7	10	3	0	5	6															
After	15	16	10	7	5	12	10	2	3	8																	
Test whether the intensive training is useful at 5% level of significance.																											
14		In a normal distribution 7% of the items are under 35 and 89% are under 63. Determine the mean and variance of the distribution	L4,L5	CO3	PO1																						
15		A population consists of five numbers 2,3,6,8,11. Consider all possible samples of size two which can be drawn with replacement from this population. Find i. The mean of the population. ii. The standard deviation of the population. iii. The mean of sampling distributions of means and iv. The standard deviation of the sampling distributions of means.	L4,L2	CO3	PO2																						
16	a)	In one sample of 10 observations from a normal population the sum of the squares of the deviations of the sample values from the sample mean is 102.4 and in other sample of 12 observations from another normal population, the sum of the squares of the deviations of the sample values from the sample mean is 120.5. Examine whether the two normal populations have the same variance.	L3,L4	CO3	PO1																						
	b)	A random sample of 10 boys had the following I.Q's 70,120,110,101,83,88,95,98,107 and 100. Do these data support the assumption of a population mean I'Q of 100.	L4	CO3	PO2																						

