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NARSIMHA REDDY ENGINEERING COLLEGE

UGC AUTONOMOUS INSTITUTION

Maisammaguda (V), Kompally - 500100, Secunderabad, Telangana State, India

UGC - Autonomous Institute

Accredited by NBA & NAAC with 'A' Grade

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Permanently affiliated to JNTUH

UNIT-IV

Tests of Hypotheses (Large and Small Samples)

S.No	Questions	BT	CO	PO
Part – A (Short Answer Questions)				
1	Define Type-I and Type-II error	L1	CO4	PO1
2	Define critical region and acceptance region.	L1	CO4	PO1
3	Explain Null and Alternative Hypothesis.	L4	CO4	PO1
4	Write Standard error formula for Method of Substitution and Method of Pooling in Proportions.	L1	CO4	PO1
5	The mean and standard deviation of a population are 11795 and 14054 respectively. If $n=50$, find 95% confidence interval for the mean.	L3	CO4	PO1
6	A die is tossed 256 times and it turns up with an even digit 150 times. If the die is biased find the test statistic value.	L3	CO4	PO1
7	If $n = 400, \bar{x} = 40, \mu = 38, \sigma = 10$ then find the 95% confidence limits for the population.	L1	CO4	PO1
8	A random sample of 500 pineapples was taken from a large consignment and 65 were found to be bad. Find the percentage of bad pineapples in the consignment.	L2,L3	CO4	PO1
9	Given $n_1 = 1200, n_2 = 900, P_1 = 0.3, P_2 = 0.25$ then find the test statistic value for difference of two proportions of large samples.	L2	CO4	PO1
10	Define Level of Significance.	L1	CO4	PO1
Part – B (Long Answer Questions)				
11	a) A sample of 64 students have a mean weight of 70kgs. Can this be regarded as a sample from a population with mean weight 56kgs and standard deviation 25kgs.	L3,L4	CO4	PO2
	b) Explain the steps involved in the procedure for testing of Hypothesis	L2,L4,L5	CO4	PO3
12	a) The mean yield of wheat from a district A was 210 pounds with S.D 10 pounds per Acre from a sample of 100 plots. In another district the mean yield was 220 pounds with S. D 12 pounds from a sample of 150 plots. Assuming that the S.D of yield in the entire state was 11 pounds, test whether there is any significant difference between the mean yield of crops.	L1,L4,L5	CO4	PO3

	b)	Samples of students were drawn from two universities and from their weights in kilograms, mean and standard deviation are calculated and shown below. Make a large sample test to test the significance of the difference between the means	L3,L4	CO4	PO2												
		<table><tr><td></td><td>Mean</td><td>S.D</td><td>Size of the sample</td></tr><tr><td>University A</td><td>55</td><td>10</td><td>400</td></tr><tr><td>University B</td><td>57</td><td>15</td><td>100</td></tr></table>		Mean	S.D	Size of the sample	University A	55	10	400	University B	57	15	100			
	Mean	S.D	Size of the sample														
University A	55	10	400														
University B	57	15	100														
13	a)	A die was thrown 9000 times and of these 3220 yielded a 3 or 4. Is this consistent with the hypothesis that the die was unbiased?	L2,L3	CO4	PO3												
	b)	Random samples of 400 men and 600 women were asked whether they would like to have a flyover near their residence. 200 men and 325 women were in favor of the proposal. Test the hypothesis that proportions of men and women in favor of proposal are same at 5% level.	L3,L4	CO4	PO3												
14	a)	A cigarette manufacturing firm claims that its brand A line of cigarettes outsells its brand B by 8%. If it is found that 42 out of a sample of 200 smokers prefer brand A and 18 out of another sample of 100 smokers prefer brand B, test whether the 8% difference is a valid claim.	L3,L4	CO4	PO3												
	b)	In two large populations, there are 30% and 25% respectively of fair-haired people. Is this difference likely to be hidden in samples of 1200 and 900 respectively from the two populations.	L3,L4	CO4	PO3												
15	a)	Write a short note on one-tailed and two-tailed tests.	L1,L4	CO4	PO1												
	b)	Explain Type-I and Type-II errors in detail with one example each.	L1,L4	CO4	PO1												
16	a)	It is claimed that a random sample of 49 tyres has a mean life of 15200kms. This sample was drawn from a population whose mean is 15150kms and a standard deviation 1200 kms. Test the significance at 0.05 level for $H_1: \mu \neq 15200$	L1,L3	CO4	PO2												
	b)	In a sample of 1000 people in Telangana 540 are rice eaters and the rest are wheat eaters. Can we assume that both rice and wheat are equally popular in this state at 1% level of significance.	L3,L4	CO4	PO3												