AI and Data Science Department

Subject: SAIDS

Module : 3

1) A random sample of 400 male students have average weight of 55 kg. Can we say that the sample comes from a population with mean 58 kg. with a variance of 9 kg. ?

2) A random sample of 400 tins of vegetable oil and labeled "5 kg. net weight" has a mean net weight of 4.98 kg. with standard deviation of 0.22 kg. Do we reject the hypothesis of net weight of 5 kg. per tin on the basis of this sample at 1% level of significance ?*Accepted at 1% level of significance*

3) A weight reducing program that includes a strict diet and exercise claims on its online advertisement that it can help an average overweight person lose 10 pounds in three months. Following the program's method a group of twelve overweight persons have lost 8.11 5.7, 11.6, 12.9, 3.8, 5.9, 7.8, 9.1, 7.0, 8.2, 9.3 and 8.0 pounds in three months. Test at 5% level of significance whether the program's advertisement is overstating the reality.

4) A ketchup manufacturer is in the process of deciding whether to produce an extra spicy brand. The company's marketing research department used a national telephone survey of 6000 households and found the extra spicy ketchup would be purchased by 335 of them. A much more extensive study made two years ago showed that 5% of the households would purchase the brand then. At a 2% significance level, should the company conclude that there is an increased interest in the extra-spicy flavour?

5) Solve using One-way ANOVA method

Observation	A	B	C
1	8	7	6
2	10	7	8
3	6	8	10
4	7	9	6
5	9	8	4
6	0	5	5
7	0	0	7