Gurudas College
STATISTICS [General]
Semester-III, Paper-CC3/GE3
Internal Assessment Exam, 2021-22

Timing: 12:30pm-1pm Marks: 10

Attempt any 10 of the following questions

1. (a) Distinguish between null hypothesis and alternative hypothesis. Which of the two is the Research hypothesis? **(1)**

   (b) What is Type-II error? What is Power of a test? **(1)**

   (c) What are the assumptions to carry out the F-test for two population variances? **(1)**

   (d) What is the difference between critical value and observed value of a statistic? **(1)**

   (e) When do we do Fisher's t-test? Give the formula for Fisher's t-statistic? **(1)**

   (f) State the $100(1-\alpha)\%$ confidence interval for μ for a single population when population variance is known. **(1)**

   (g) A random sample of 400 coins is taken from a large number of coins. The mean weight of the coins in the sample is 28.57gms and the standard deviation is 1.25 gms. What are the limits which have a 95% chance of including the mean weight of all the coins? **(1)**

   (h) Give an example where the estimator is consistent but not unbiased. **(1)**

   (i) **TRUE/FALSE**: If T is consistent estimator of a parameter $\gamma(\theta)$ then $aT+b$ is always consistent estimator of $a\gamma(\theta)+b$, where a and b are constants. **(1)**

   (j) If θ is a parameter and T is an estimator such that $E(T)=\frac{2\theta}{\sqrt{7}}$, suggest an unbiased estimator of θ and another biased estimator based on T. **(1)**

(k) Point estimator, having smaller standard error is said to have greater

(a) Unbiasedness.
(b) Consistency.
(c) Efficiency.
(d) None of these.

(1)

(l) How can you express 'Point estimator' among the following option?

(a) any value from the sample used to estimate a parameter.
(b) the margin of error used to estimate a parameter.
(c) a sample statistic used to estimate a parameter.
(d) incomplete the information .

(1)

(m) **TRUE/FALSE**: A point estimate is an unbiased estimator if its standard deviation is the same as the actual value of the population standard deviation

(1)

(n) Find the expectation for a F-Distribution variable with $v_1 = 7$ and $v_2 = 8$, where v_1 and v_2 are d.f.

(a) $\frac{4}{7}$
(b) $\frac{2}{3}$
(c) $\frac{2}{7}$
(d) None of these.

(1)

(o) Write the probability density function of the distribution which is skewed.

(1)