Forman Christian College a Chartered University Lahore

Department of Statistics

Sample Paper for M. Phil. Statistics Admission

Note: Please attempt all questions.

1. If a random variable X follows F-distribution as X~ $F_{(m,n)}$ then $\frac{1}{X}$ follows:

   a) $F_{(m,n)}$ b) $T_{(m,n)}$ c) $F_{(n,m)}$ d) $T_{(n)}$

2. If $r_{xy} = 0.4$, then $r_{(2x,2y)}$ is equal to

   a) 0.4 b) 0.8 c) 0 d) 1

3. For a consistent estimator which of the following statement is true

   a) $\lim_{n\to\infty} P\left[\left|\hat{\theta} - \theta\right| \le e\right] = 0$ b) $\lim_{n\to\infty} P\left[\left|\hat{\theta} - \theta\right| \le 0\right] = 1$

   c) $\lim_{n\to\infty} P\left[\left|\hat{\theta} - \theta\right| \le e\right] = 1$ d) $\lim_{n\to 0} P\left[\left|\hat{\theta} - \theta\right| \le e\right] = 1$

4. A question was asked, where answer is either YES or NO, to 150 individuals from a section of population, of them 90 said YES answer. What will be the value of chi-square if the hypothesis to be tested is P(YES) = P(NO)?

   a) 5 b) 6 c) 15 d) 25

5. What is the sampling distribution of sample mean if the random sample of size n = 5000 is drawn from a Poisson distribution?

   a) Normal distribution b) Standard normal distribution c) t-distribution d) F-distribution

6. A researcher wishes to draw sample of individuals from poor, middle and rich economic class. Which type of sampling method is appropriate

   a) Simple random sampling b) Stratified sampling

   c) systematic sampling d) convenient sampling

7. A sufficient estimator can be utilized

   a) Partial information of a sample b) Full information of a sample

   c) Partial information of a population d) Full information of a population

8. The simplest completely randomized groups design is a:

   a) Single group design b) Single variable design

   c) Two group design d) Two variables design

9. If $r_{xy} = 0.75$, then correlation coefficient between u = 1.5X and v = 2Y is

   a) 0 b) 0.75 c) -0.75 d) 1.5

10. If X_i follows normal distribution with mean μ and variance σ^2 then $E(X-\mu)^4 =$

    a) $3\sigma^2$ b) $3\sigma^4$ c) $3\mu^2$ d) 3