

Section A: Objective Type Questions

Q1. Choose the appropriate Answer: (8x1.5=12)

- i. The Workers in a factory is an example of :
A Finite Population B Infinite Population
C Real Population D None of the above.
- ii. Power of a test is related to:
A Type I error B Type II error
C Both D None
- iii. Area of the critical region depends on:
A Size of type I error B Size of type II error
C Value of the statistic D Number of observations
- iv. The idea of testing of hypothesis was first set forth by:
A R.A. Fisher B J.Neyman
C A.Wald D none
- v. Kolmogorov Smirnov test is based on the theorem given by:
A N.V.Smirnov B A.N.Kolmogorov
C Kolmogorov-Smirnov D Glivenko-Canteli
- vi. Ordinary sign test utilises
A Poission distribution B Binomial distribution
C Both D None
- vii. Any population constant is called
A Statistics B Parameter
C Estimate D Estimator
- viii. A statement about a population developed for the purpose of testing is called:
A Hypothesis B Hypothesis testing
C Level of significance D none

Section-B: Descriptive Type Questions (Short Type)

Q2: Answer all the Questions (8 x 4 =32)

- i. Define real and hypothetical population with example?
- ii. What do you mean by parameter and statistic?
- iii. What is type-I and type-II error?
- iv. Define critical region?
- v. Write the difference between large and small samples?
- vi. What is a confidence interval?
- vii. Define non-parametric test?
- viii. Define parametric test?

Section – C: Descriptive Type Questions (Medium Type)

Answer all the questions: (4 x 7=28)

Q 3. Define standard error. Show that standard error of sample mean is σ/\sqrt{n} .

OR

Define standard error. Show that standard error of sample proportion is $\sqrt{\frac{PQ}{n}}$

Q 4. Explain: i) level of significance ii) Critical region iii) Acceptance region

OR

Explain the following with reference to testing of hypothesis:
i)Power of a test ii)most powerful test

Q 5. In a sample of 1000 people in Maharashtra 540 are rice eaters and the rest are wheat eaters. Can we assume that both rice eaters and wheat eaters are equally popular in this state at 1% level of significance? (Given $Z=2.58$)

OR

Explain the procedure for test of significance for difference of

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two means for large samples?

- Q6.** Write advantages and limitations of non-parametric methods over parametric methods?

OR

A teacher claims that the median time to do a particular type of mathematics problem is at most 3 minutes, but her students believe that the median time is more than 3 minutes. A random sample of 10 students completed the problem in the following times (in minutes): 2.5 , 2 , 4 , 4.5 , 4, 2.5, 4.5, 3, 3.5, 5

Section – D: Descriptive Type Questions (Long Type)

Answer any two of the following: (2 x 14=28)

- Q7.** i) Write the statement of central limit theorem?
ii) Explain sampling distribution of mean?
- Q8.** Explain statistical hypothesis and its types?
- Q9.** Random sample 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 favour of the proposal. Test the hypothesis that proportions of men and women in favour of the proposal are same against that they are not, at 5% level.
- Q10.** Explain Kolmogorov Smirnov test?