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SVS - 337-B-18

B.Sc. Vth Semester Degree Examination

MATHEMATICAL STATISTICS

Testing of Hypothesis

Paper - VI (5.2)

Time : 3 Hours **Maximum Marks : 80**

Instructions to Candidates:

Statistical tables and graph sheets will be supplied on request.

SECTION - A

I. Answer the following **(15×1=15)**

1) Usually the hypothesis under test is

a) Null hypothesis. b Alternative hypothesis.

c) Composite hypothesis. d) None.

2) $\propto$ is probability of

a) Type I error b) Type II error

c) Both (a) and (b) d) None

3) For large sample, sample size is

a) More than 30 b) less than 30

c) Between 20 and 30 d) None

4) Which of the following is two tailed hypothesis.

a) $H_1 : \mu_1 = \mu_2$ b) $H_1 : \mu_1 > \mu_2$

c) $H_1 : \mu_1 < \mu_2$ d) $H_1 : \mu_1 \neq \mu_2$

5) F-test is applicable for testing.

a) Equality of two means b) Independence of Attributes

c) Equality of two variances d) Correlation coefficient

6) To test Ho: P_o the test statistic is

a) $\frac{P_o - p}{\sqrt{\frac{pq}{n}}}$ b) $\frac{p - Po}{\sqrt{\frac{PoQo}{n}}}$

c) $\frac{P\,Po}{\sqrt{\frac{Po - Qo}{n}}}$ d) $\frac{Po\,Qo}{\sqrt{\frac{Pq}{n}}}$

7) Degrees of freedom for testing goodness of fit is n-1-c, where c is

a) Number of parameters calculated

b) Sample size

c) Sample error

d) None

8) In SPRT the sample size is

a) Vary large b) Small

c) Fixed d) Variable

9) Number of independent observations reletes to

a) Power of the test b) hypothesis

c) Degree of freedom d) level of significance

10) Sign test is used to test

a) $\mu = \mu_0$ b) $\mu_1 = \mu_2$

c) Both (a) and (b) d) None

11) If Ho is rejected than _____ is accepted.

12) In 2×2 table yete's correction is applied if one of the cell frequency is _____

13) The test which does not involve any parameter is known as _____

14) In SPRT, A is given by _____

15) In Mann-whitney U test, if U is normal than var (u) is _____

SECTION - B

II. Answer any **FIVE** of the following **(5×5=25)**

16) Define likelihood ratio test. State the properties of LR test.

17) Define the term.

a) Simple hypothesis.

b) Composite hypothesis.

c) Level of Significance.

18) Describe the procedure of SPRT for testing $Ho: \theta = \theta 0$ against $H_1: \theta = \theta_1 (> \theta 0)$

19) Explain the procedure of testing the independence of attributes.

20) Define most powerful and uniformly most powerful test.

21) Distinguish between parametric and non parametric test.

22) Explain median test.

SECTION - C

II. Answer Any **FOUR** of the following **(4×10=40)**

23) Explain the test procedure for testing (i) Single mean (ii) Difference of means for large samples.

24) If $x \geq 1.5$ is the Critical region for testing $H_0: \theta = 2$ against $H_1: \theta = 1$ on the basis of single observation from the population.

$f(x,\theta) = \theta\, \bar{e}^{\theta x}$ $\quad 0 \leq x \leq \infty$

$= 0$ Otherwise

then obtain size of the type-I and type-II error.

25) Explain the test procedure of goodness of fit.

26) Describe RUN and SIGN teet.

27) Explain OC and ASN functions of SPRT.

28) Let $x_1 \ldots x_n$ be a random variable sample from a normal population with unknown μ and σ^2 is known develop SPRT for testing $H_0: \mu = \mu_0$ against $H_1: \mu = \mu_1$.
