SECTION - B (35 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks   (5 x 7 = 35)

11 (a) Let p be the probability that a coin will fall head in a single toss In order to test $H_0:p=1/2$ against $H_1:p=3/4$. the coin is tossed 5 times and H_0 is rejected if more than 3 heads are obtained. Find the probability of type I error and power of the test.

OR

(b) What is meant by a statistical hypothesis? Explain the concept of Type I and Type II error.

12 (a) Briefly explain Uniformly Most Powerful Test Criterion.

OR

(b) Discuss the general method of construction of likelihood ratio test.

13 (a) Explain the test procedure for testing equality of population correlation coefficients.

OR

(b) Describe the test to test equality of two normal populations standard deviation

14 (a) Explain the test procedure for testing the equality of variances of two normal populations.

OR

(b) Explain the applications of Chi-square distribution in testing of hypothesis.

15 (a) Show from the following data whether (A) and (B) are independent, positively associated or negatively associated.
      i.   N= 200, (A)=30, (B)=100, (AB)=15
      ii. N=400, (A)=50, (B)=160, (AB)=25
      iii. N=800, (A)=160, (B)=300, (AB)=50

OR

(b) What do you understand by consistency of data?

SECTION - C (30 Marks)
Answer any THREE Questions
ALL Questions Carry EQUAL Marks   (3 x 10 = 30)

16 State and prove Neymann Pearson lemma.

17 Derive the likelihood Ratio Test for a Mean of a Normal Population $N(\mu, \sigma^2)$, where σ^2 is known.

18 Explain the procedure of testing hypotheses for population mean, when the population variance is unknown.

19 Explain the t-test for testing the significance of equality of two means.

20 Explain χ^2 test of independence of attributes.

Z-Z-Z   END

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION DECEMBER 2022
(Fifth Semester)
Branch – STATISTICS

EDUCATIONAL AND PSYCHOLOGICAL STATISTICS

Time: Three Hours   Maximum: 75 Marks

SECTION-A (10 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (10 x 1 = 10)

1. Psychological and educational statistics observations are based upon _____ curve.
   (i)Normal   (ii)Exponential   (iii)Chi-Square   (iv)None of these

2. Psychological scale is an
   (i) Ratio scale   (ii)Nominal Scale   (iii)Interval Scale   (iv)All of these

3. In a standard Normal Z distribution, what percentage of z - scores lives between -1.96 and +1.96?
   (i) 5 percent   (ii)1 percent   (iii)10 percent   (iv)None

4. The mean of σ scores is always zero and its standard deviation is _____
   (i) zero   (ii)unity   (iii)$-\infty$ (iv)$+\infty$

5. A stannine score is a way to scale scores on a
   (i) 5 point scale   (ii) 3 point scale   (iii)Normal scale   (iv)9 point scale

6. Which variable is unmeasurable with scale and unexpressible with magnitude?
   (i) Qualitative variable   (ii)Quantitative variable
   (iii)Continuous variable   (iv)Discrete variable

7. On a Normal curve, approximately what percentage of scores is found within two standard deviations above and below the mean?
   (i) 99%   (ii)100%   (iii)95%   (iv)98%

8. The standard error of the measurement is also known as standard deviation of the _____
   (i) reliability   (ii)validity   (iii)test score   (iv)Error score

9. The items in personality test correlate strongly with one another. What kind of reliability or validity does this imply?
   (i) Content validity   (ii)Internal consistency
   (iii)Retest reliability   (iv)None of these

10. Which of the following is not a weakness of many projective personality tests?
    (i) Poor predictive validity
    (ii) Poor inter – relative reliability
    (iii)Susceptibility to faking good bias
    (iv) Susceptibility to poor incremental validity relative to inventories.

SECTION - B (35 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks (5 x 7 = 35)

11.(a) Explain the point biserial correlation.

(or)

(b) Briefly outline Tetrachoric correlation.

12.(a)Write a short notes on Normalised scores.

(or)