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Name:

Reg. No:

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2022

(CUCBCSS-UG)

CC15U PSY3 C02 - PSYCHOLOGICAL STATISTICS

(Psychology – Complementary Course)

(2015 to 2018 Admissions – Supplementary/Improvement)

Time: Three Hours

Maximum: 80 Marks

Part A

Answer *all* questions. Each question carries 1 mark

A. Objective type Questions

1. In a binomial distribution, the relationship between mean and variance is
a) Mean = Variance b) Mean < Variance c) Mean > Variance d) None of these
2. For a Poisson variate, mean is 5 then its variance is
a) 0 b) 5 c) 10 d) 25
3. A normal distribution is
a) Symmetric b) Continuous c) Mesokurtic d) all the above
4. Probability of Type I error is
a) Critical region b) Power
c) Level of Significance d) p value
5. The variance of a normal distribution for specified value can be tested by
a) F-test b) Z-test c) Chi-square test d) t-test

B. Fill in the blanks:

6. The mean of a binomial distribution with parameters n and p is
7. For a standard normal distribution, variance =
8. Random sampling is also termed as
9. A study based on complete enumeration is known as
10. Accepting the null hypothesis when its alternative is true is

(10 × 1 = 10 Marks)

Part B

Answer *all* questions. Each question carries 2 marks.

11. Determine the binomial distribution for which the mean is 4 and standard deviation is $\sqrt{3}$.
12. If X follows Poisson law such that $P(X=1) = P(X=2)$. Find its mean and variance.
13. Define simple random sampling.
14. Define i) Critical region ii) Power of the test.

15. Distinguish between Population and sample.
16. State central limit theorem.
17. Distinguish between parameter and statistic.
18. Differentiate between one tailed and two tailed tests.
19. Write down the test statistic for paired t test.
20. What is the use of Chi-Square test?

(10 × 2 = 20 Marks)

Part C

Answer any *six* questions. Each question carries 5 marks

21. Define Normal distribution. State its properties.
22. Briefly explain the procedure followed in tests of a statistical population.
23. What do you mean by Systematic sampling? Write down its merits and demerits.
24. Explain the test for correlation.
25. Write down the merits and demerits of sample survey?
26. A sample of size 8 from a normal population with s.d 3 is 6, 8, 11, 5, 9, 11, 10, 12.
Examine whether the mean of the population is 7.
27. The mean and variance of binomial variate X are 16 and 8 respectively. Find
 - i) $P(X = 0)$
 - ii) $P(X=1)$
 - iii) $P(X \geq 2)$

(6 × 5 = 30 Marks)

Part D (Essay Questions)

Answer any *two* questions. Each question carries 10 marks.

28. Develop large sample test for testing the proportion of a population.
29. What do you mean by non-probability sampling? Explain various types of non-probability sampling.
30. An examination was given to 50 students at college A and to 60 students at college B.
At A the mean grade was 75 with standard deviation of 9 and at B the mean grade was 79 with standard deviation of 7. Is there significant difference between the performance of the students at A and those at B at 5% level of significance.
31. Fit a binomial distribution to the following data.

x	0	1	2	3	4
f	2	4	5	6	3

(2 × 10 = 20 Marks)
