24P257 (Pages: 3) Name : .....

Reg. No : .....

SECOND SEMESTER M.A. DEGREE EXAMINATION, APRIL 2025

(CBCSS-PG)

(Regular/Supplementary/Improvement)

CC19P ECO2 C08 - QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS - II

(Economics)

(2019 Admission onwards)

Time: 3 Hours Maximum: 30 Weightage

Part A

Answer ***all*** questions. Each question carries 1/5 weightage.

1. The probability of all possible outcomes of a random experiment is always equal to
   (a) One (b) Zero (c) Infinity (d) None of these

2. The probability of the interscetion of two mutually exclussive events is always:
   (a) Infinity (b) Zero (c) One (d) None of these

3. If X is a r.v. having the pdf f(x), then E(X) is called
   (a) Arithmetic mean (b) Geometric mean (c) Harmonic mean (d) First quartile

4. If X and Y are independent random variables, then E(XY)=------- provided all the expectations exist:
   (a) E(X) (b) E(Y) (c) E(X)E(Y) (d) None of these

5. Binomial distribution was discovered by
   (a) James Bernoulli (b) Simeon Denis Poisson
   (c) Laplace (d) None of the above

6. If ‘m’ is a whole number, mode of Poisson distribution
   (a) m-1 and m (b) m and m+1 (c) m (d) None of these

7. A normal distribution is:
   (a) Symmetric (b) Continuous (c) Mesokurtic (d) All the above

8. The degrees of freedom for student's t distribution based on a random sample of size n is:
   (a) n (b) n-1 (c) n-2 (d) None of these

9. As the sample size increases, the t distribution becomes more similar to the -------- distribution
   (a) Normal (b) Chi-squre (c) F (d) Binomial

10. The chi-square and F distributions are used primarily to make inferences about population
    (a) Means (b) Variances (c) Proportions (d) None of these

11. The maximum likelihood estimators are necessarily:
    (a) Unbiased (b) Sufficient (c) Most efficient (d) Unique

12. The hypothesis under test is a:
    (a) Simple hypothesis (b) Alternative hypothesis
    (c) Null hypothesis (d) None of the above

13. Level of significance is the probability of:
    (a) Type I error (b) Type II error (c) Not committing error (d) None of the above

14. The statistic H under Kruskal-Walis test is approximately distributed as:
    (a) Student's t (b) Snedecor's F (c) Chi-square (d) normal deviate- Z

15. In ANOVA we test:
    (a) The equality of several variances (b) Significance of mean
    (c) The equality of several means (d) Significance of variance

(15 × 1/5 = 3 Weightage)

Part B (Very Short Answer Questions)

Answer any ***five*** questions. Each question carries 1 weightage.

16. Define variance of a random variable using expectation.

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18. Mention the conditions under which Binomial tends to Poisson distribution.

19. Mention any two properties of Exponential distribution.

20. Distinguish between point estimation and interval estimation.

21. Define null and alternative hypothesis.

22. Mention the test statistic for testing the equality of variances of two normal populations when the samples are small.

23. Mention any two assumptions in non parametric tests.

(5 × 1 = 5 Weightage)

Part C (Short Answer Questions)

Answer any ***seven*** questions. Each question carries 2 weightage.

24. Two unbiased dice are tossed. What is the probability that the sum of points scored on the two dice is 8?

25. The probability that A hits a target is 1/4 and the probability that B hits it is 2/5. What is the probability that the target will be hit if A and B each shoot at the target?

26. (i) State Baye's theorem. (ii) A box contains 3 blue and 2 red balls while another box contains 2 blue and 5 red balls. A ball drawn at random from one of the boxes turns out to be blue. What is the probability that it came from the first box?

27. Find the probability distribution of the number of heads when three coins are tossed together?

28. Explain (i) Standard Error (ii) Sampling Distribution

29. Mention any three properties of Chi-square distribution and two applications.

30. Explain the method of least squares.

31. Explain the terms (i) Significance level (ii) Power of the test (iii) Type I and Type II errors.

32. Disguish between parametric and non-parametric test.

33. What is ANOVA? What are the assumptions of it?

(7 × 2 = 14 Weightage)

Part D (Essay questions)

Answer any ***two*** questions. Each question carries 4 weightage.

34. (i) If the mean and variance of a binomial distribution are 4 and 2 respectively. Find the probabiliy of (i) exactly two successes (ii) less than two successes (iii) More than two sucesses (iv) at least two successes

35. What is normal distribution? Discuss the usefullness and properties of normal distribution.

36. Explain any four properties of good estimators.

37. Explain ANOVA and two way ANOVA technique.

(2 × 4 = 8 Weightage)

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