SECOND SEMESTER M.A. DEGREE EXAMINATION, APRIL 2023
(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 set of all possible outcomes of a random experiment is:

    (a) Sample space   (b) Event

    (c) Compound event   (d) Mutually exclusive event

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 random variable and 'b' is a constant then $V(X + b)$ is:

    (a) $V(X) + b$ (b) $V(X)$ (c) $bV(X)$ (d) None of these

4. If A is a constant $E(A) =$:

    (a) A   (b) 0   (c) 1   (d) 0.5

5. If X and Y are random variables, then $E(X+Y)=$------, provided all the expectations exist:

    (a) $E(XY)$ (b) $E(Y)$ (c) $E(X)+E(Y)$ (d) None of these

6. Mean of binomial distribution is:

    (a) Always more than its variance   (b) Always less than its variance

    (c) Always equal to its variance   (d) Always equal to standard deviation

7. A normal distribution is

    (a) Symmetric   (b) Continuous   (c) Mesokurtic   (d) All the above

8. The frequency curve of lognormal distribution is always:

    (a) Positively skewed   (b) Symmetric

    (c) Straight line   (d) Negatively skewed

9. The students t distribution is introduced by:

    (a) Karl Pearson   (b) Laplace   (c) William S Gosset (d) None of these

10. The t distribution has degrees of freedom:

    (a) n   (b) 2   (c) 10   (d) n-1

11. The values associated with a two-sided 95% confidence interval of the standard normal distribution are

    (a) ± 1.28   (b) ± 1.645   (c) ± 1.96   (d) ± 2.575

12. The maximum likelihood estimators are necessarily:

    (a) unbiased   (b) sufficient   (c) most efficient   (d) unique

13. Probability of type I error is called:

    (a) Significance Level   (b) Critical Region

    (c) Power of the test   (d) None of the above

14. To test the significance of proportion, we use:

    (a) t-test   (b) F-test   (c) Normal test   (d) Chi-square test

15. Ordinary sign test utilises:

    (a) Poisson distribution   (b) Binomial distribution

    (c) both (a) and (b)   (d) neither (a) nor (b)

(15 × 1/5 = 3 Weightage)

Part B (Very Short Answer Questions)
Answer any *five* questions. Each question carries 1 weightage.

16. Mention any two properties of distribution function.

17. Define variance of a random variable using expectation.

18. Mention any two properties of Poisson distribution.

19. Mention any two applications of Lognormal distribution.

20. Mention any two uses of chi square test.

21. Define sufficiency of an estimator.

22. Define critical region and significance level of a test.

23. What is ANOVA?

(5 × 1 = 5 Weightage)

Part C (Short Answer Questions)
Answer any *seven* questions. Each question carries 2 weightage.

24. Define Sample space and Event. When will you say that two events are are mutually exclusive?

25. State and prove the addition theorem of probability.

26. State and prove Bayes' theorem.

27. What are the properties and uses of Binomial distribution?

28. Explain how you would find interval estimates for the variance of a normal population.

29. Explain the method of least squares.

30. Explain with example Simple and Composite hypothesis.

31. Explain how the Chi-square distribution may be used to test goodness of fit.

32. Explain the procedure in one sample sign test.

33. Explain two way ANOVA technique.

(7 × 2 = 14 Weightage)

Part D (Essay questions)
Answer any *two* questions. Each question carries 4 weightage.

34. State and prove addition and multiplication theorem of expectation.

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

36. Explain the terms (i) parameter (ii) statistic (iii) sampling distribution. Derive the sampling distribution of mean of samples from a normal population.

37. (i) Mention the procedure for testing the equality of means of two populations. (ii) For a sample of 100 labourers from Kerala, the average daily wages is Rs. 10.5 with Sd Rs. 1.5. For a sample of 150 labourers from Tamil Nadu, the corresponding figures are Rs. 8 and Rs. 1 respectively. Can you conclude that the average wages of workers in Kerala are more than that of workers in Tamil Nadu?

(2 × 4 = 8 Weightage)

****