(7 pages)

Reg. No. : .....

Code No. : 5398 **Sub. Code : PESM 23**

M.A. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Second Semester

Economics — Core

STATISTICAL METHODS FOR ECONOMICS — II

(For those who joined in July 2017 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer.

1. Calculate : $6C_4$ = _____.

   (a) 35 (b) 6

   (c) 15 (d) None

2. The outcoming of tossing a coin is a _____.

   (a) Compound event

   (b) Mutually exclusive event

   (c) Simple event

   (d) Complementary event

3. Non-sampling errors include _____.

(a) Bias (b) Mistakes

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

4. A selection procedure of a sample having no involvement of probability is known as _____.

(a) Purposive sampling

(b) Judgement sampling

(c) Subjective sampling

(d) All the above

5. Any statistical measure computed from population data is known as _____.

(a) Parameter (b) Statistic

(c) Infinite (d) Sample data

6. Standard error of number of success is equal to _____.

(a) $\sqrt{n}$ (b) $\sqrt{p}$

(c) $\sqrt{q}$ (d) $\sqrt{npq}$

7. The hypothesis is true but our test rejects it is _____.

(a) Type I error (b) Type II error

(c) Both (a) and (b) (d) Correct decision

8. A test which maximizes the power of the test for fixed α is known as _____.

(a) Optimum Test

(b) Bayes Test

(c) Randomized Test

(d) Likelihood Ratio Test

9. The idea of testing of hypothesis was first set forth by _____.

(a) R.A. Fisher (b) J. Neyman

(c) E.L. Lehman (d) A. Wald

10. Expand ANOVA _____.

(a) Activity Of Variance

(b) And Of Variance

(c) Analysis Of Variance

(d) None of the above

PART B — (5 × 5 = 25 marks)

Answer ALL the questions, choosing either (a) or (b).

11. (a) Discuss Baye's probability and give formula for its calculation.

Or

(b) Write down the characteristics of Normal distribution.

12. (a) Explain the Lottery method and Table of random numbers.

Or

(b) Give a brief note on the concept of sampling distribution and its properties and conditions.

13. (a) Explain the method of Least Square.

Or

(b) What are the different types of estimation available? Explain.

14. (a) What are the steps involved in testing of hypothesis?

Or

(b) Briefly explain the characteristics of hypothesis.

15. (a) Explain how '*t*'-test is applied to test the equality of two population means.

Or

(b) Explain about Chi-square (χ^2) test and its uses.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL the questions, choosing either (a) or (b).

16. (a) A random variable X has the following probability function :

Value of X :	0	1	2	3	4	5	6	7
$P(X)$:	0	K	$2K$	$2K$	$3K$	K^2	$2K^2$	$7K^2 + K$

(i) Find K.

(ii) Evaluate $P(X < 6)$, $P(X \geq 6)$ and $P(0 < X < 5)$.

Or

(b) A bag contains 8 white and 5 red balls. Five balls are drawn at random. What is the probability that of 3 of them are red and 2 white?

17. (a) Give a brief note on sampling and non-sampling errors.

Or

(b) How to select stratified random sample? Explain its merits.

18. (a) Explain point and interval estimation. Obtain these estimates for the mean of normal population and interpret the same.

Or

(b) Explain briefly about good estimation.

19. (a) Sample of two different types of bulbs were tested for length of life, and the following data were obtained.

	Type I	Type II
Sample size	8	7
Sample Mean	1134 hrs	1024 hrs
Sample SD	35 hrs	40 hrs

Is the difference in the means significant? (Given that the significant value of '*t*' at 5% level of significance for 13 d.f. is 2.16)

Or

(b) Explain critical and acceptance region in detail.

20. (a) The following figure shows the distribution of digits in numbers chosen at random from a telephone directory.

Digits :	0	1	2	3	4	5
Frequency :	1026	1107	997	966	1075	933
Digits :	6	7	8	9	Total	
Frequency :	1107	972	964	853	10,000	

Test whether the digits may be taken to occur equally frequently in the directory.

Or

(b) Verify whether Poisson distribution can be assumed from the data given below :

No. of defects :	0	1	2	3	4	5
f_0 :	6	13	13	8	4	3
f_1 :	6.24	13.52	13.52	9.01	4.5	1.8

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