(6 pages)

Reg. No. :

Code No. : 5269

Sub. Code : ZESM 13

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

First Semester

Economics — Core

STATISTICAL METHODS

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — $(10 \times 1 = 10 \text{ marks})$

Answer ALL questions.

Choose the correct answer:

- 1. Correlation is perfectly positive when r =
 - (a) -1 (b) +1
 - (c) 0 (d) α
- 2. We can find 'r' by using
 - (a) \sqrt{bxy} (b) \sqrt{byx}
 - (c) $\sqrt{byx \cdot bxy}$ (d) None

- 3. If an event is certain to happen, the probability of the event will be
 - (a) +1 (b) -1
 - (c) 0 (d) None
- 4. Who discovered Binomial Distribution?
 - (a) Gauss (b) De Moivre
 - (c) Fisher (d) Bernouli
- 5. Sampling errors are present only in
 - (a) complete enumeration survey
 - (b) sample survey
 - (c) both census and sample survey
 - (d) Neither sample nor census survey
- - (a) judgement (b) cluster
 - (c) probability (d) None of these
- 7. The standard error of the mean is

(a)
$$\sigma^2$$
 (b) $\frac{\sigma}{n}$

(c)
$$\frac{\sigma}{\sqrt{n}}$$
 (d) $\frac{\sqrt{n}}{\sigma}$

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8. In the right tailed test, the critical region is

(a) 0

(b) 1

(c) lies entirely in right tail

(d) lies in the left tail

9. Student's t-distribution was pioneered by

(a)	Karl Pearson	(b)	Laplace
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- (c) R.A. Fisher (d) William S. Gosset
- 10. When observed and expected frequencies completely coincide χ^2 will be
 - (a) 0 (b) -1
 - (c) +1 (d) greater than 1

PART B — $(5 \times 5 = 25 \text{ marks})$

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

11. (a) State the difference between correlation and regression.

Or

(b) Calculate the co-efficient of correlation by using concurrent deviation method :

X: 200 220 225 230 220 222 230 240 235 Y: 40 35 25 20 25 21 18 16 17

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12. (a) Write the basic concepts of probability.

Or

- (b) A bag contains 20 white balls, 6 green balls,6 red balls and 8 black balls. What is the probability of getting a green ball or a black ball if a ball is drawn at random?
- 13. (a) Distinguish census and sample method.

Or

- (b) Write a note on non-random sampling.
- 14. (a) State briefly Alternative Hypothesis.

Or

- (b) Write a note on level of significance.
- 15. (a) What are the conditions of applying χ^2 test?

Or

(b) Mention the assumptions of student's t-test.

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PART C — $(5 \times 8 = 40 \text{ marks})$

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

16. (a) Explain the methods of measuring correlation.

Or

- (b) Calculate regression equations for the data given below taking durations from actual means:
 - X: 6 2 10 4 8
 - Y: 9 11 5 8 7
- 17. (a) Give an account of Theorems of probability.

\mathbf{Or}

- (b) A coin is tossed 3 times. What is the probability of getting 1 head, 2 head and 3 head?
- 18. (a) Discuss Type I and Type II errors.

Or

- (b) Explain one-tailed and two-tailed test in detail.
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19. (a) Give an account of merits and limitations of sampling.

Or

- (b) Explain the methods of sampling.
- 20. (a) Explain the procedure of obtaining various sums of squares in one-way classification.

Or

(b) Give an account of properties of χ^2 test.

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