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3 SEM TDC ECOH (CBCS) C 7

2025

(Nov/Dec)

ECONOMICS

(Core)

Paper : C-7

(Statistical Methods in Economics)

Full Marks : 80

Pass Marks : 32

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer the following as directed : $1 \times 8 = 8$

(a) On which of the following measures
extreme values have no effect?

(i) Arithmetic mean

(ii) Median

(iii) Geometric mean

(iv) Harmonic mean

(Choose the correct answer)

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(2)

- (b) Mention one limitation of mean deviation.
- (c) When two coins are tossed, the probability of getting at least one tail is
- (i) $\frac{1}{4}$
- (ii) $\frac{1}{2}$
- (iii) $\frac{3}{4}$
- (iv) None of the above.

(Choose the correct answer)

- (d) Define secondary data.
- (e) Mention one property of rank correlation coefficient.
- (f) When a die is thrown, the occurrences of an even number and an odd number are _____ events.

(Fill in the blank)

- (g) The error of rejecting a true or correct hypothesis is termed as non-sampling error.

(Write True or False)

- (h) When $r = +1$, it means there is _____ relationship.

(Fill in the blank)

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(Continued)

(3)

2. Write short notes on any four of the following (within 150 words each) : $4 \times 4 = 16$

- (a) Kurtosis
- (b) Properties of regression coefficient
- (c) Random variable
- (d) Sampling error
- (e) Sample space

3. (a) Discuss the relationship among mean, median and mode. Which one is the best average and why? $4+7=11$

Or

- (b) Find the standard deviation and its coefficient from the following data : $8+3=11$

Variable	Frequency
More than 90	0
" " 80	5
" " 70	14
" " 60	34
" " 50	65
" " 40	110
" " 30	150
" " 20	170
" " 10	176
" " 0	180

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(4)

4. (a) (i) Explain the addition theorem of probability using Venn diagram in case of mutually exclusive events and events that are not mutually exclusive. 7

(ii) A coin is tossed 6 times. What is the probability of getting at least 2 heads? 4

Or

(b) There are 3 economists, 4 engineers, 2 statisticians and 1 doctor. A committee of 4 members from them is selected. Find the probability that the committee has—

(i) one of each kind;

(ii) at least one economist;

(iii) the doctor as a member and three others. $4+4+3=11$

5. (a) Write brief notes on the following : $5+3+3=11$

(i) Distinction between sampling and census

(ii) Errors in statistics

(iii) Testing of hypothesis

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(Continued)

(5)

Or

(b) In a survey conducted in a town, the following results were found :

	Male	Female	Total
Taking tea	56	31	87
Not taking tea	18	6	24
Total	74	37	111

Discuss whether there is any significant difference between male and female in the matter of taking tea.

[The value of χ^2 for 1 degree of freedom at 5% level of significance is 3.84.] 11

6. (a) (i) Mention the properties of Karl Pearson's coefficient of correlation. 4

(ii) The following data relate to the age of employees and the number of days they were reported sick in a month :

Age (X)	:	30	32	35	40	48	50	52	55	57	61
Sick days (Y)	:	1	0	2	5	2	4	6	5	7	8

Calculate Pearson's coefficient of correlation. 8

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(6)

Or

- (b) The following data are given for marks in Economics (Y) and Statistics (X) in a certain year. Determine the two regression equations and also find the probable marks in Economics of a candidate who obtained 50 marks in Statistics : $5+5+2=12$

Mean marks in Statistics : 39.5

Mean marks in Economics : 47.6

Standard deviation of marks
in Statistics : 10.8

Standard deviation of marks
in Economics : 16.9

r between marks in Statistics
and Economics : 0.42

7. (a) (i) State the distinctive features of normal distribution. 6
- (ii) Explain the importance of Poisson distribution. 5

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(Continued)

(7)

Or

- (b) Explain the following concepts : $2+2+4+3=11$

- (i) Discrete random variable
(ii) Continuous random variable
(iii) Properties of mathematical expectation
(iv) Probability density function

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