

Reg. No. : .....

(7 pages)

Code No. : 5483

Sub. Code : HESM 23

M.A. (CBCS) DEGREE EXAMINATION, APRIL 2015.

Second Semester

Economics

STATISTICAL METHODS

(For those who joined in July 2012 and afterwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Lines trend of a time series indicate towards
  - (a) constant rate of change
  - (b) constant rate of growth
  - (c) change in geometric progression
  - (d) all of the above.
2. Element of subjectivity is involved in index numbers due to
  - (a) choice of base year
  - (b) selection of weights
  - (c) choice of commodities
  - (d) all of the above.
3. If  $x$  and  $y$  are two variates, there can be at most
  - (a) one regression line
  - (b) two regression line
  - (c) three regression line
  - (d) An infinite number of regression line.
4. Significance of a regression coefficient can be tested by
  - (a) t - test
  - (b) f - test
  - (c) both (a) and (b)
  - (d) neither (a) nor (b).
5. The out come of tossing a coin is a
  - (a) simple event
  - (b) mutually exclusive event
  - (c) complementary event
  - (d) compound event.





6. If  $x$  is a random variable,  $E(e^{tx})$  is known as
- characteristic function
  - moment generating function
  - probability generating function
  - all of the above.
7. Simple random sample can be drawn with the help of
- random number tables
  - chit method
  - roulette wheel
  - all of the above.
8. An unordered sample of size  $n$  can occur in
- $n$  ways
  - $n!$  ways
  - one way
  - $n^2$  ways.
9. A wrong decision about  $H_0$  leads to
- one kind of error
  - two kinds of error
  - three kinds of error
  - four kinds of error.

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10. Degrees of freedom is related to
- no of observations in a set
  - hypothesis under test
  - no of independent observations in a set
  - none of the above.

PART B — (5 × 5 = 25 marks).

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

Each answer should not exceed 250 words.

11. (a) List out the sources of secondary data.

Or

- (b) List out the properties of a good measure of variation.

12. (a) State the implications of positive and negative correlation.

Or

- (b) What are the assumptions made in a linear regression?

13. (a) State multiplicative law of probability.

Or

- (b) Delineate binomial distribution and its important features.

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[P.T.O.]





14. (a) Briefly explain the sampling theory.

Or

- (b) Explain the law of statistical regularity.

15. (a) Explain the types of errors in testing hypothesis.

Or

- (b) A random sample of 100 students gave a mean weight of 58 kilogram with standard deviation of 4 kg. Test the hypothesis that the mean weight in the population is 60 kg.

PART C — ( $5 \times 8 = 40$  marks)

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

Each answer should not exceed 600 words.

16. (a) The weighted geometric mean of the four numbers 8, 25, 17 and 30 is 15.3. If the weights of the first three numbers are 5, 3 and 4 respectively, find the weight of the fourth numbers.

Or

- (b) Explain the significance of measuring variation.

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17. (a) Calculate the correlation coefficient between the following data :

X: 5 9 13 17 21

Y: 12 20 25 33 35

Or

- (b) Given the bivariable data :

X: 1 5 3 2 1 1 7 3

Y: 6 1 0 0 1 2 1 5

- (i) Fit a regression line of  $y$  on  $x$  and hence predict  $x$  if  $y = 2$ .
- (ii) Fit a regression line of  $x$  on  $y$  and hence predict  $y$  if  $x = 5$ .

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

Or

- (b) Discuss elaborately normal distribution and its characteristics.

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19. (a) Describe the methods of sampling.

Or

(b) 600 apples are taken at random from a large consignment, showed that 200 were damaged. Find

(i) 95% and

(ii) 99% confidence limits for the proportion of damaged units in the consignment.

20. (a) Mention the different properties of a test.

Or

(b) Explain how  $t$  – test is applied to test the equality of two population means.

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