2022

(Held in 2023)

ECONOMICS

Paper : ECOHC3076

(Statistical Methods for Economics)

Full Marks : 80
Pass Marks : 32

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer from the following : 1×6=6

(a) Which of the following is the measure of central value?
- *(i)* Median
- *(ii)* First quartile
- *(iii)* Third quartile
- *(iv)* None of the above

(b) The geometric mean of 1/32 and 8/25 is
- *(i)* 1/10
- *(ii)* 1/100
- *(iii)* 10
- *(iv)* 100

(c) A normal curve is defined by the mean and the standard deviation.

(i) True

(ii) False

(iii) None of the above

(d) If r is the correlation coefficient, then the quantity $(1-r^2)$ is called

(i) coefficient of determination

(ii) coefficient of non-determination

(iii) coefficient of alienation

(iv) None of the above

(e) Out of all the measures of dispersion, the easiest one to calculate is

(i) standard deviation

(ii) range

(iii) variance

(iv) quartile deviation

(f) The mean of a binomial distribution is

(i) pq

(ii) np

(iii) nq

(iv) None of the above

2. Answer the following questions : 2×5=10

(a) When is rank correlation used?

(b) Define kurtosis.

(c) Explain two uses of weighted mean.

(d) What are the types of random variable?

(e) Define partial correlation.

3. Answer any *six* of the following questions : 5×6=30

(a) Given $P(A \cup B) = 0{\cdot}47$ and $P(B) = 0{\cdot}30$. If the events A and B are independent, calculate $P(AB)$.

(b) Explain the characteristics of a good average.

(c) State the multiplication or compound theorem of probability.

(d) A bag contains 6 white, 4 red and 10 black balls. 2 balls are drawn at random. Find the probability that they will both be black.

(e) Prove that $E(x-u) = 0$, where $E(x) = u$.

(f) Explain the roles of sampling theory.

(g) Show that in binomial distribution mean > variance.

(h) Differentiate between absolute and relative dispersion.

(i) Explain the role of sampling theory.

4. Answer any *two* of the following questions : 10×2=20

(a) State the merits and limitations of Karl Pearson's coefficient of correlation. 5+5=10

(b) *A* throws a coin thrice. If he gets a head in all the three throws, he wins ₹ 1,200. Otherwise, he has to lose ₹ 150. Find the mathematical expectation of gain of *A*.

(c) Write the merits and demerits of sample survey. 5+5=10

5. Answer any *one* of the following questions : 14

(a) The probability of failure in physics practical examination is 20%. If 25 batches of 6 students each appear at the examination, in how many batches 4 or more students would pass?

(b) What do you understand by sample survey? Briefly explain the principal steps in a sample survey. 2+12=14

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