2016

ECONOMICS

Paper : 1·4

(Statistical Methods for Economic Analysis)

Full Marks : 80

Time : Three hours

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

1.   Answer the following :   2×4

 (a)   The mean and variance of a binomial
 distribution are quoted as 2·10 and
 1·34. Which of the numbers is the
 variance ? Give reason for your answer.

 (b)   Under what condition will the Lorenz
 Curve be a straight line ?

 (c)   Why is it necessary to deflate some time
 series ?

(d) Distinguish between a probability mass function and a probability density function.

2. Answer **any three** of the following :

8×3

(a) How is the Index of Industrial Production different from a price index number ? What are the main uses of the former ? 4+4

(b) State the Pareto's law of income distribution. Explain why the Paretian distribution is not suitable for representing the lower end of the income distribution. 2+6

(c) What is a standard normal distribution ? Discuss its main properties. 2+6

(d) Distinguish between mutually exclusive and independent events. Given that $P(A) = 0.15$ and $P(B) = 0.25$, what is $P(AB)$, where the events are mutually exclusive and when they are independent ? 5+3

(e) How is probability conceptualised according to the axiomatic approach ? Why is this approach considered superior to the conventional mathematical and empirical definitions of probability ? 4+4

3. Answer **any three** of the following :

16×3

(a) Explain the features of the Laspayre's, the Paache's and the Fisher's index numbers. Discuss their relative merits from theoretical and practical purposes. 9+7

(b) Explain the ideas of the Lorenz Curve, the line of equal distribution and the Gini co-efficient. Show how they are interrelated. 10+6

(c) With the help of suitable examples distinguish between a discrete and a continuous random variable. How are their probability distributions different ? Illustrate the features of the Binomial Distribution as the distribution of a discrete random variable. 6+2+8

(d) Define mathematical expectation of a discrete random variable and explain the interpretation of the idea with the help of an example. Device the addition and multiplication rules of expedition. 5+5+6

(e) Present a comparative analysis of the basic features of the bionomial and the Poisson distributions. 16