## 2019

### B.Sc.

### 3rd Semester Examination

# ECONOMICS

# (Honours)

### Paper - C 7-T

Full Marks : 60                              Time : 3 Hours

*The figures in the margin indicate full marks.*
*Candidates are required to give their answers*
*in their own words as far as practicable.*

#### Group-A

1. Answer any *ten* questions :                    10×2=20

   (a) What are the different methods of collecting
       primary data?                                      2

   (b) Mention two disadvantages of Arithmetic
       mean.                                              2

   (c) What do you mean by Kurtosis of a
       distribution?                                      2

*[ Turn Over ]*

(d) What is the relation between co-rrelation co-efficient and the two regression co-efficients. 2

(e) State four important properties of binomial distribution. 2

(f) Distinguish between parameter and statistics. 2

(g) What is a null hypothesis? 2

(h) What is time reversal test? 2

(i) What is Ogive? 2

(j) Prove that S. D. depends on the scale of observation but does not depends on the change of origin. 2

(k) What do you mean by 'expectation' of a random variable? 2

(l) What is point estimation? 2

(m) What is sampling error? 2

(n) What is stratified sampling? 2

(o) Mention two uses of cost of living index number. 2

## Group-B

2. Answer any *four* questions :　　　　　　$4 \times 5 = 20$

(a) Find the class limits, class marks, class boundaries and the relative frequencies of the classes from the following frequency distribution.　　　　　　5

| Marks | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 |
|---|---|---|---|---|---|
| No. of Students | 5 | 15 | 18 | 12 | 6 |

(b) Prove that the absolute value of the correlation coefficient between x and y depends neither upon the origin nor upon the scale. 5

(c) Suppose x is B (m, p), where symbols have their usual meaning. The mean and the variance are respectively 4 and 4/3. Find the value of m.　　　　　　5

(d) A lot of 100 items contains 20 defective. If a simple random sample of size 10 is drawn without replacement, find out the standard error of the sample proportion of defective items.　　　　　　5

(e) Two random variables x and y are jointly

*[ Turn Over ]*

distributed so that $P(x = 1) = \frac{1}{3}$,

$P(x = 2) = \frac{2}{3}$, $P(y = 0) = \frac{2}{3}$, $P(y = 1) = \frac{1}{3}$,

$P(x = 2, y = 1) = P$ where $0 \leq P \leq \frac{1}{3}$. Find out the correlation coefficient between x and y. 5

(f) The safety limit of a crane is known to be 32 tons. The mean weight and the S.D of a large number of iron rod is 0·3 ton and 0·2 ton respectively. 100 rods are lifted at a time. Find the probability of an accident. 5

### Group-C

3. Answer any *two* questions : 2×10=20

(a) (i) Show that the second central moment of a distribution is its variance.

(ii) The mean, median and the co-efficient of variation of the weekly wages of a group of workers are respectively Rs. 45, Rs. 42 and 40. Find the (a) mode; (b) variance; (c) co-efficient of skewness for the distribution of wages. 4+6