2017

M.Com. 2nd Semester Examination
BASIC STATISTICS

PAPER—COM-204

Full Marks : 50

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(CBCS)

Unit – I
(Marks : 20)

1. Answer any *two* of the following questions :　　2×5

   (a) Prove that the correlation co-efficient 'r' lies between –1 and +1.

   (b) Define the terms :

   　　(i) Frequency Distribution ;

   　　(ii) Quartile Deviation.　　　　　　$2 \times 2\frac{1}{2}$

(c) Write short notes on :

    (i) Mean Deviation ;

    (ii) Kurtosis. $\qquad\qquad\qquad\qquad\qquad 2 \times 2\frac{1}{2}$

(d) Distinguish between :

    (i) Population and Sample ;

    (ii) Cumulative Frequency and Relative Frequency.

$$2 \times 2\frac{1}{2}$$

2. Answer any *one* question of the following : $\qquad 1 \times 10$

    (a) (i) Show that correlation co-efficient (γ) does not depend on the change of origin and scale.

        (ii) Determine the correlation co-efficient between x and y

x :	5	7	9	11	13	15
y :	1.7	2.4	2.8	3.4	3.7	4.4

$$5+5$$

(b) The A.M of the following frequency distribution is 67.45 inches. Calculate the missing frequencies.

Height (inches)	60-62	63-65	66-68	69-71	72-74	Total
Frequency	15	?	126	?	24	300

Unit – II

(Marks : 20)

3. Answer any *two* questions of the following :   2×5

(a) Give the classical definition of probability. What are its limitations ?   2+3

(b) A person is known to hit a target in 3 out of 4 shots, whereas another person is known to hit the same target in 2 out of 3 shots. Find the probability of the target being hit at all when both of them try to hit the target independently.   5

(c) What do you understand by

  (i) Null hypothesis and Alternative hypothesis ;

  (ii) Type-I error and Type-II error.   2+3

(d) State briefly the steps that you would follow for testing a statistical hypothesis.   5

4. Answer any *one* of the following questions :   1×10

(a) (i) State the conditions under which the Poisson distribution is used. Also mention the important properties of Poisson distribution.

(ii) The incidence of a certail disease is such that on an average 20 per cent of workers of a particular city suffers from it. If 10 workers are selected at random, find the probability that (i) exactly 2 workers suffer from the disease, (ii) not more than 2 workers suffer from the disease.   5+5

(b) (i) Exide Battery Co. Ltd. manufactures pencil batteries which are programmed by a computer to have an average life span of 8 months and a standard deviation of 2 months. If the average life of a random sample of 100 batteries purchased from different stores is found as 7.4 months are the data consistent · with the mean battery life programmed into the computer ?

(ii) A machine produced 10 defective articles in a sample of 200 articles. After the machine is overhauled, it produced 4 defective articles in a sample of 100. Do you think that the machine has improved after overhauling ? [Test at $\alpha = 0.05$]   4+6

[Internal Assessment — 10]

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