2019

Time : 3 hours

Full Marks : 50

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

The figures in the margin indicate full marks.

*Answer from **all** the Groups as directed.*

Group – A

(Compulsory)

1. Choose the appropriate answer from each of the following multiple choice questions : 1×10 = 10

   (a) In tossing three coin at a time, the probability of getting at most one head is :

   (i) $\frac{3}{8}$

   (ii) $\frac{7}{8}$

(iii) $\frac{1}{2}$

(iv) $\frac{1}{8}$

(b) From a pack of 52 cards, two cards are drawn at random, the probability that one is an ace and other is a king is :

(i) $\frac{1}{13}$

(ii) $\frac{1}{69}$

(iii) $\frac{16}{169}$

(iv) $\frac{8}{663}$

(c) Probability can take value :

(i) $-\infty$ to ∞

(ii) $-\infty$ to 1

(iii) -1 to 1

(iv) 0 to 1

(d) Mean is a measure of :

(i) Location

(ii) Dispersion

(iii) Correlation

(iv) None of the above

(e) If a constant value 50 is subtracted from each observation of a set, the mean of set is :

(i) Increased by 50

(ii) Decrease by 50

(iii) Is not effected

(iv) Zero

(f) The correct relationship between AM, GM and HM is :

(i) AM = GM = HM

(ii) GM ≥ AM ≥ HM

(iii) HM ≥ GM ≥ AM

(iv) AM ≥ GM ≥ HM

(g) Extreme value have no effect on :

(i) Average

(ii) Median

(iii) Geometric Mean

(iv) Harmonic Mean

(h) The term regression was introduced by :

(i) RA Fisher

(ii) Sir Francis Galton

(iii) Karl Pearson

(iv) None of the above

(i) In a regression line Y on X, the variable X is known as :

(i) Independent

(ii) Regressor

(iii) Explanatory variable

(iv) All of the above

(j) The value of correlation ratio varies from :

(i) –1 to 1

(ii) –1 to 0

(iii) 0 to 1

(iv) 0 to ∞

Group – B

Answer any **four** questions of the following : 5×4 = 20

2. State addition and multiplication theorem of probability.

3. Discuss statistical and mathematical definition of probability.

4. What do you understand by measure of central tendency ?

5. Define geometric mean with propertise.

6. How will you calculate median in case of ungrouped data ?

7. Define correlation coefficent.

8. What do you understand by correlation between two variables ?

9. Define regression coefficient.

Group – C

(Long-answer Type Questions)

Answer any **two** questions of the following : $10 \times 2 = 20$

10. The probability that an entering college student will be graduate is 0.4. Determine the probability that out of 5 entering students :
    (a) None
    (b) One
    (c) At least one will be selected

11. The following table gives the diastolic blood pressure of 250 men. The readings were made

to the nearest millimeter and the central value of each group is given by :

Blood Pressure(mm)	Number of Mean
60	4
65	5
70	31
75	39
80	114
85	30
90	25
95	2

Calculate from the data the mean and the median.

12. Explain Bayes Theorem with an example.

13. Define regression coefficient and how it differ from correlation.