

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 : $1 \times 10 = 10$

(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) $GM \geq AM \geq HM$

(iii) $HM \geq GM \geq AM$

(iv) $AM \geq GM \geq HM$

(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 :

$$5 \times 4 = 20$$

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 coefficient.
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

Blood Pressure(mm)	Number of Mean
120/80	10
130/90	10
140/100	10
150/110	10
160/120	10
170/130	10
180/140	10
190/150	10
200/160	10
210/170	10
220/180	10
230/190	10
240/200	10
250/210	10
260/220	10
270/230	10
280/240	10
290/250	10
300/260	10
310/270	10
320/280	10
330/290	10
340/300	10
350/310	10
360/320	10
370/330	10
380/340	10
390/350	10
400/360	10
410/370	10
420/380	10
430/390	10
440/400	10
450/410	10
460/420	10
470/430	10
480/440	10
490/450	10
500/460	10
510/470	10
520/480	10
530/490	10
540/500	10
550/510	10
560/520	10
570/530	10
580/540	10
590/550	10
600/560	10
610/570	10
620/580	10
630/590	10
640/600	10
650/610	10
660/620	10
670/630	10
680/640	10
690/650	10
700/660	10
710/670	10
720/680	10
730/690	10
740/700	10
750/710	10
760/720	10
770/730	10
780/740	10
790/750	10
800/760	10
810/770	10
820/780	10
830/790	10
840/800	10
850/810	10
860/820	10
870/830	10
880/840	10
890/850	10
900/860	10
910/870	10
920/880	10
930/890	10
940/900	10
950/910	10
960/920	10
970/930	10
980/940	10
990/950	10
1000/960	10
1010/970	10
1020/980	10
1030/990	10
1040/1000	10
1050/1010	10
1060/1020	10
1070/1030	10
1080/1040	10
1090/1050	10
1100/1060	10
1110/1070	10
1120/1080	10
1130/1090	10
1140/1100	10
1150/1110	10
1160/1120	10
1170/1130	10
1180/1140	10
1190/1150	10
1200/1160	10
1210/1170	10
1220/1180	10
1230/1190	10
1240/1200	10
1250/1210	10
1260/1220	10
1270/1230	10
1280/1240	10
1290/1250	10
1300/1260	10
1310/1270	10
1320/1280	10
1330/1290	10
1340/1300	10
1350/1310	10
1360/1320	10
1370/1330	10
1380/1340	10
1390/1350	10
1400/1360	10
1410/1370	10
1420/1380	10
1430/1390	10
1440/1400	10
1450/1410	10
1460/1420	10
1470/1430	10
1480/1440	10
1490/1450	10
1500/1460	10
1510/1470	10
1520/1480	10
15	

60	4
65	5
70	31
75	39
80	114
85	30
90	25
95	2

12. Explain Bayes Theorem with an example.

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

