

U.G. 4th Semester Examination - 2021**B.B.A.****Course Code : BBBACCHT 402****Course Title: Statistics for Business Decisions**

Full Marks : 40

Time : 2 Hours

*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.*1. Answer any **ten** questions of the following:

1×10=10

- a) States the relationship among mean, median and mode.
- b) Define frequency polygon.
- c) What do you mean by sampling error?
- d) What is frequency density?
- e) Define simple random sampling.
- f) If two intersecting regression lines are $X=5+0.8Y$ and $Y=8+0.2X$, what is the value of correlation coefficient between X and Y?

- g) Find out $A \cup B$ and $A \cap B$, when $A = \{1, 2, 3, 4, 5\}$ and $B = \{2, 4, 6, 8, 10\}$.
- h) A bag contains 6 white and 4 black balls. One ball is drawn. What is the probability that it is white?
- i) Define Standard Deviation.
- j) Find the Mode of the numbers: 3, 6, 7, 3, 4, 3, 1, 2, 4
- k) Define probability.
- l) What do you mean by mutually exclusive events?
- m) The A.M. and G.M. of two observations are 25 and 15 respectively. Find the H.M.
- n) Name two relative measures of Dispersion.
- o) What is Quartile deviation?

2. Answer any **five** questions of the following:

2×5=10

- a) Five persons A, B, C, D and E occupy seats in a row at random. What is the probability that A and B sit next to each other?
- b) State two properties of geometric mean.
- c) State the classical definition of probability.
- d) Two dice are thrown simultaneously and the points on the dice are multiplied together. Find the probability that the product is 12.

- e) If $A = \{1, 2, 3, 4, 5, 6, 7\}$ and $B = \{2, 4, 6, 8, 10, 12\}$, then find the sets $A \cup B$ and $A \cap B$
- f) Find the Standard Deviation when $N = 10$, $\Sigma x = 20$ and $\Sigma x^2 = 1690$.
- g) Distinguish between Primary data and Secondary data.
- h) What is Stratified sampling?

3. Answer any **two** questions of the following:

$$5 \times 2 = 10$$

a) Calculate:

- i) the number of cases between 112 and 134
- ii) Number less than 112 and
- iii) Number greater than 134 from the following:

Class limit	90-100	100-110	110-120	120-130
Frequency	16	22	45	60

Class limit	130-140	140-150	150-160
Frequency	50	24	10

- b) A bag contains 8 white and 6 black balls. If 5 balls are drawn at random, what is the probability that 3 are black and 2 are white? (with explanation)

- c) Find the Coefficient of Variation from the following data:

Height:	59 - 61	61 - 63	63 - 65	65 - 67	67 - 69
No. of Students:	4	30	45	15	6

4. Answer any **one** question of the following:

$$10 \times 1 = 10$$

- a) i) Prove that correlation coefficient does not depend on the origin and scale of the observations.
- ii) Find the correlation coefficient from the following data:

X	65	63	67	64	68	62	70	66
Y	68	66	68	65	69	66	68	65

$$5 + 5$$

- b) Draw a Ogive from the following data and hence find the Median from it:

Class:	10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	6	7	9	12	8	6	4

- c) i) What do you mean by Conditional probability?

- ii) Three bags contain 3 red, 7 black; 8 red, 2 black, and 4 red & 6 black balls respectively. One of the bags is selected at random and a ball is drawn from it. If the ball drawn is red, find the probability that it is drawn from the third bag.
