



Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956)
Re-accredited with 'A+' Grade by NAAC. Recognised by UGC Under Section 12B
Coimbatore - 641 043, Tamil Nadu, India

Bachelor's Degree Examination – March 2021
I Semester

Class : I UG
Major : Information Technology

Time : 3 Hours
Max. Marks : 100

18BITI01 Probability and Statistics

Part A
Choose the Correct Answer

10 x 1 = 10

1. Identify the Range of the probability.
a. -1 to 0 b. -1 to 1 c. 0 to 1 d. any point
2. Two or more events are said to be _____ if only one of them occurs at a time.
a. Random events b. Mutually exclusive c. Exhausted d. Sure events
3. If one card is drawn from a pack of 52 cards, what is the probability that the card is a red card?
a. 1/2 b. 2/3 c. 1/4 d. 3/4
4. If one coin is tossed, what is the probability of having head?
a. 1/2 b. 2/3 c. 1/4 d. 3/4
5. Diagrams and graphs are tools of _____.
a. Collection of Data b. Analysis c. Presentation d. Categories
6. A simple table represents _____.
a. Only one factor or variable b. Always two factors or variables
c. Two or more number of factors or variables d. Five factors
7. Which of the following is a measure of central value?
a. Median b. Standard deviation
c. Mean Deviation d. Quartile deviation
8. What is the Median for 5,3,12,6,9?
a. 5 b. 6.5 c. 6 d. 5.5
9. If mean = 40 and S.D= 4, then the co-efficient of variation is
a. 10 b. 100 c. 25 d. 40
10. Variance is _____ of standard deviation.
a. Square b. Reciprocal c. one fourth d. one third

Part B

5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. A bag contains 3 red, 6 white and 7 black balls. What is the probability that two balls drawn are white and black?

(or)

11.b. What is the chance of throwing a total of 3 or 5 or 11 with two dice?

12.a. A problem in Mathematics is given to three students whose chances of solving it are $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{1}{5}$

i. What is the probability that the problem is solved?

ii. What is the probability that exactly one of them will solve it?

(or)

12.b. Two cards are drawn from a pack of 52 cards in succession. Find the probability that both are Jack when the first drawn card is i. replaced ii. not replaced

13.a. Find the suitable simple bar diagram showing the following data.

Year	2002	2003	2004	2005	2006	2007
Profits	15000	18000	20000	16000	13000	17000

(or)

13.b. Define statistics and Functions of statistics.

14.a. Find the median of the following frequency distribution.

X:	1	2	3	4	5	6	7
f:	5	12	10	18	16	12	8

(or)

14.b. Calculate the mode of the following distribution

Marks	No of students	Marks	No of students
0-10	2	40-50	42
10-20	18	50-60	20
20-30	30	60-70	6
30-40	45	70-80	3

15.a. Compute standard deviation from the following data.

Class (x)	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency(f)	8	12	17	14	9	7	4

(or)

15.b. Calculate Coefficient of variation for the following data.

X:	2	4	6	8	10
f:	3	5	8	5	2

Part C

5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

- 16.a. i. State and Prove addition theorem on Probability.
ii. From a pack of well shuffled playing cards, one card is drawn at random. What is the probability that it is a King or spades?
(or)
- 16.b. There are 2 red, 3 green and 4 black balls of identical size in an urn. 3 balls are drawn at random, Find the probability that
i. they are different colours
ii. 2 are green and 1 is black
iii. 2 are red and
iv. at least 1 black.
- 17.a. i. From a bag containing 3 white and 5 red balls of identical size, two balls are drawn at random one after another. Find the probability of getting white balls in both the draws if the draws are i. without replacement ii. with replacement.

ii. A lot contains 10 items of which 3 are defective. Three items are chosen at random from the lot one after another. Find the probability that all the three are defective if the draws are i. without replacement ii. with replacement.
(or)
- 17.b. i. Two friends A and B decide to play a game with one die. They throw the die alternatively. Whoever gets 5 or 6 first is the winner. What is the probability that A wins?

ii. State and Prove Bayes' Theorem.

18.a. Explain the methods of Data Collection.

(or)

18.b. Draw a Histogram, Frequency polygon, Frequency curve of the distribution of marks

X	15-20	20-25	25-30	30-35	35-40	40-45	45-50
f	9	11	10	44	45	54	37

19.a. Calculate the Mean, Median and Mode for the following data:

X	2-6	6-10	10-14	14-18	18-22	22-26	26-30	30-34
f	1	9	21	47	52	36	19	3

(or)

19.b. i. Calculate Geometric mean for the data given below:

X	10	15	25	40	50
f	4	6	10	7	3

ii. Compute the Harmonic Mean for the following data:

X	10	12	14	16	18	20
f	5	18	20	10	6	1

20.a. Compute standard deviation from the following data.

Class (x)	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency(f)	8	12	17	14	9	7	4

(or)

20.b. Find the Mean deviation and Quartile Deviation values for the following data
X : 32, 51, 23, 46, 20, 78, 57, 56, 57, 30.
