National University of Computer & Emerging Sciences, Karachi
Fall 2023, FAST School of Computing

Mid-Term I
5th October, 2022 , 11:00 am -12:00 noon

Course Code: MT - 2005	**Course Name: Probability & Statistics**
Instructor Names : Mr. Muhammad Amjad	
Student Roll No:	**Section No: BCS -5A**

Instructions:

- Return the question paper.
- In case of any ambiguity, you may make assumption. But your assumption should not contradict any statement in the question paper.
- **There are 05 Questions and 02 pages.**
- **All the questions must be solved according to the sequence given in the question paper.**

Time: **60 minutes** **Max Marks: 30 points**

Proposed Time: 20 minutes **CLO1** **Max marks: 05**

Q -1) The final marks in Programming fundamental of 39 students are given below: arrange them into a frequency distribution table of size i.e. ($h = 10$, width of Class interval) showing marks in the column of Tally.

$$N = \frac{Range}{width\ of\ Class\ Interval}\ , where\ N = total\ number\ of\ Class\ Interval$$

70	50	38	64	50	36	44	66	72	80	78	4	10
44	74	54	48	6	74	34	14	20	40	76	26	0
30	52	64	58	22	10	76	32	52	70	62	56	68

With reference to the above table, find:

(i)The highest marks and lowest marks. [0.5]

(iii) Set up a frequency distribution (tally sheet). [2.0]

(iv) Make a Stem – leaf plot display. [1.0]

(v) Draw histogram on the same graph paper. [1.5]

Proposed time :20 minutes **CLO1** **Max marks:05**

Q- 2) The Manager of a small factory claimed that the average earnings of the workers in his factory were more than $20. A survey of the earning of the workers gives the results below:

Daily wages ($)	0 - 4	4 - 8	8 -12	12 – 16	16 - 20	20 – 24	24 - 28	28 -32
No. of workers	2	5	8	11	12	9	4	1

a) Compute mean, median and mode. [1+1.5+1.5 =4]

b) Comment on the symmetry of the distribution. [1]

Proposed Time: 10 minutes **CLO1** **Max marks: 05**

Q3) (a) How many different permutations can be made from the word "ACCOUNTANCY". [1]

Q3) (b) How many four digit numbers can be made using the integers: 0, 1, 2,3,4,5,6 and 7. If the integers repeated. [1]

Q3(c) In how many different ways can 4 married couple be seated in row if:

(i) No restriction is imposed [1]

(ii) Men and women sit alternately. [1]

(iii) Men sit together. [1]

Proposed Time: 10 minutes **CLO1** **Max marks: 05**

Q-4 (a) The probability that an Aluminum industry will locate on Lahore is 0.7, the probability that it will locate in Karachi is 0.4 and the probability it will locate in either Lahore or Karachi or both is 0.8. Find the probability that the Industry will locate:

(i) In both cities. [1.5] (ii) In neither city. [1.5]

Q-4(b) There are 272 employees in an organization. 180 employees are graduates and 95 are females and 145 adults are males. what is the probability that a randomly selected employee is?

(i) graduate and female. [1] (ii) male and not graduate.[1]

The following table shows the detail of graduate & gender.

	Male	Female	Total
Graduate	145	35	180
Not graduate	32	60	92
Total	177	95	272

Proposed Time: 10 minutes **CLO1** **Max marks: [5+5 = 10]**

Q5(a) Fill in the blanks.

(i) Two coins are tossed the probability of getting at least one head is_____.

(ii) Two cards are drawn from deck of the probability of getting all clubs is_____.

(iii) The five number summary are containing on _____, _____, _____, _____, _____.

(iv) When Mode (f_1 or f_2 missing values found in frequency table) cannot be find/solve then, we use a direct relation known as _____.

(v) While preparing the frequency distribution we use a minimum _____and maximum ___ number of classes.

Q5(b) Choose the best answer.

i. The probability of any event A ranges between,

a. $-1 < P(A) < 1$ b. $0 < P(A) < 1$ c. $-\infty < P(A) < \infty$

ii. What is variance of age of five friends? If all are of same age=20.

a. Zero b. 5 c. 20

iii. A random variable with a finite (or countably infinite) range is called:

a. Discrete Random variable b. Continuous Random variable c. none of these

iv. Which of the following is NOT a measure of central tendency?

a. Geometric mean b. Median c. Range

v. The median of a group frequency distribution is found graphically with the help of:

a. Histogram b. Pie chart c. Ogive
