



Answer ALL the following Questions (50 Marks)

Question 1: (10 Marks)

Class	5.5 - 10.5	10.5 - 15.5	15.5 - 20.5	20.5 - 25.5	25.5 - 30.5	30.5 - 35.5	35.5 - 40.5
Frequency	1	2	3	5	4	3	2

A) For this frequency distribution, find the following (7 Marks)

- 1- Cumulative Frequency Distribution 2- Mean 3- Standard Deviation 4- Mode
5- Median(with law) 6- Draw the histogram 7- Draw the Ogive.

B) (3 Marks)

The number of stories in two selected samples of tall buildings in Atlanta and Philadelphia is shown.

- 1- Construct a back-to-back stem and leaf plot.
2- Compare the results

Atlanta					Philadelphia				
55	70	44	36	40	61	40	38	32	30
63	40	44	34	38	58	40	40	25	30
60	47	52	32	32	54	40	36	30	30
50	53	32	28	31	53	39	36	34	33
52	32	34	32	50	50	38	36	39	32
26	29								

Question 2: (10 Marks)

A sample of 6 children was selected, data about their age and weight was recorded

- 1- What is the correlation between age and weight. (4 Marks)
2- Find the regression equation (4 Marks)
3- what is the predicted weight when age is 8.5 years. (2 Marks)

serial No	Weight (Kg)	Age (years)
1	12	7
2	8	6
3	12	8
4	10	5
5	11	6
6	13	9

Question 3 (15 Marks)

- A) Define 1- Intersection 2- Union 3- complement (3 Marks)
B) List the sample space of throwing a pair of distinguished dices, then find the probability of : (6 Marks)
1- Dice add to 3 2- Dice add to 6 3- First dice show 1
C) A factory has three Machinery, The first produces 450, the second 350 and the third 200. The defective products from the first machine is 1%, the second 2% and the third 3%. If we select a product and it is defective what is the probability that it is second machine product. (6 Marks)

Question 5: (15 Marks)

- A) Define 1- Conditional Probability 2- Law of total probability 3- Bayes' Rule (3 Marks)

B) A recent survey asked 100 people, The results of the survey are given in the following table.

Gender	YES	NO	Total
MALE	32	18	50
FEMALE	8	42	50
Total	40	60	

Find these probabilities: (6 Marks)

- a. The respondent answered yes, given that the respondent was a female.
b. The respondent was a male, given that the respondent answered no.

C) The results of an Experiment for two new types of pain relieve medications are given in the following table (6 Marks)

- 1- What were the variables under study. Its type. Its measurement level?
2- What is the probability that a person was receiving a placebo(A2) or drug A(A3)?
3- Probability a person was receiving a placebo(A2) or has a neurological headache (A4)?

Side effect	Number of side effects in 12-week clinical trial		
	Placebo n= 192	Drug A n= 186	Drug B n=188
respiratory congestion	10	32	19
Sinus headache	11	25	32
Stomach ache	2	46	12
Neurological headache	34	55	72
Cough	22	18	31

With All My best Wishes
Dr. Mohamed Ghoneim