Question Bank

Q1// Answers the following multiple-choice questions:

1- Which measure of central tendency is suitable for the extreme value in data:

   a) Mean.   b) Variance.   c) Mode.   d) Range.

2- The shape of the normal curve depends on its.

   a) Standard Deviation.   b) Mean.   c) Range.   d) None of them.

3- All of the following are types of probability Sampling except;

   a) Cluster sampling.   b) Stratified sampling.

   c) Simple sampling.   d) Quota sampling.

4- Heart Beats and Blood Pressure are examples of ………… data.

   a) Qualitative.   b) Quantitative.   c) Nominal.   d) None of them.

5- Appropriate graph to display the Response to treatment (Poor, Fair, Good).

   a) Frequency polygon.   b) Histogram.   c) Line graph.   d) Bar Chart.

6- Null and alternative hypotheses are statements about:

   a) Sample Parameters.   b) Sample Statistics.   c) Population Parameters.

   d) None of them.

7- Beta β, is the probability which of a kind of error.

   a) Type I.   b) Type II.   c) Standard Error.   d) None of them.

Q2// Let's we have 5 treatment groups t_1, t_2, t_3, t_4, and t_5. Test for their mean difference (ANOVA) and find the Least Significant Difference (LSDα), at the 5% significant level.

t_1	t_2	t_3	t_4	t_5
9	10	22	8	8
5	14	21	10	9
7	11	18	16	6

Q3// Explain these:

1. What are the Type I Error and Type II Error?
2. Describe the Critical region, Critical Value by the chart.
3. Describe one-tail and two-tail tests?
4. What are the Hypotheses for One Sample t-test?
5. What are the differences between Statistic and Parameter?
6. What are the differences between Z-test and the t-test?

Q4// Suppose the mean pulse rate in healthy adults is **72** beats per min. The research was conducted to examine the pulse rate in patients with hyperthyroidism. Twenty patients were randomly enrolled with a mean of **80** and a standard deviation of **20**. Assuming that the pulse rate follows a normal distribution, is the mean pulse rate in hyperthyroidism patients different from that in healthy adults? Use α=**0.05**

Q5// *The following table gives the number of refrigerators sold by 4 salesmen in three months May, June, and July:*

Month	Salesman (Treatments)			
(Blocks)	A	B	C	D
March	20	10	18	9
April	16	18	20	15
May	9	14	10	9

Is there a significant difference in the sales made by the four salesmen? Is there a significant difference in the sales made during different months? α = 0.05

Q6// *If we have the following information test the Duncan's test:*

If MSE=1.8 and α = 0.05

Treatments	t_1	t_2	t_3	t_4
Mean	3.2	9.5	6.3	11.6
r	5	5	5	5

Q7// The following data represents the reading of blood pressure (BP) before and after being given one of the special drugs. Test the mean of BP after use of the drug less than before. If $\alpha = 0.05$

No.	1	2	3	4	5	6
BP (Before)	200	160	190	185	210	175
BP (After)	180	165	175	185	170	160

Q8// White Blood Counts Listed below are white blood cell counts (1000 cells>mL) from
males and females. Calculate the Coefficient of Variation (C.V) and explained which of them has more variation.

Female	4	6	8	3	4
Male	7	6	8	8	6

Q9// A total of 300 healthy women are randomly selected from a city. The **mean** of the total protein level in blood serum is calculated as (77 g/L) and the **standard deviation** is (5 g/L) (assuming a normal distribution).
$1 - P(80 < X < 90)$.

2- The proportion of the number of healthy women whose total protein level is **more than 70**.

Q10// If have a random sample of 500 American adults who are questioned regarding their political affiliation and opinion on a tax reform bill. We will test if the political affiliation and their opinion on a tax reform bill are dependent at a 5% level of significance. Calculate the Chi-Square Test of Independence.

	Favor	Indifferent	Opposed
Democrat	138	83	64
Republican	64	67	84