

**MA EDUCATION
SECOND SEMESTER
STATISTICS IN EDUCATION
MAE - 202**

(Use Separate Answer Scripts for Objective & Descriptive)

Duration : 2 hrs.

Full Marks : 50

(PART-A : Objective)

Time : 10 min.

Marks : 10

Choose the correct answer from the following:

1 × 20 = 20

1. The technique that is used to determine if more than two population means are equal by analyzing the variation in the data is known as:
 - a. Chi-square
 - b. Analysis of variance
 - c. Correlation analysis
 - d. Regression lines
2. Which of the following is a Non-parametric test?
 - a. ANOVA
 - b. Chi-square
 - c. Z-test
 - d. All of the above
3. Co-efficient of correlation range from:
 - a. 1 to 2
 - b. 0.7 to -0.7
 - c. -1 to 1
 - d. None of these
4. Kurtosis is distribution:
 - a. Parametric
 - b. Non-parametric
 - c. Normal
 - d. Non-normal
5. Regression equations tend to explain the of change in one variable influenced by the change in another variable:
 - a. Direction
 - b. Prediction
 - c. Value
 - d. Measurement
6. The Skewness of a normal distribution is:
 - a. 2.58
 - b. 1
 - c. 0
 - d. 1.96
7. 1-test is also called as:
 - a. Non-directional test
 - b. Directional test
 - c. Distribution free test
 - d. None of these

5. Write short notes on the following: 5+5=10
- a. Two-tailed test and one-tailed test.
 - b. Assumptions of ANOVA

6. a. What do you mean by Degrees of Freedom? 2+4+4=10
- b. In a Psychological test, a sample of 500 pre-university students of Rohtak city is found to possess the mean score of 95 and SD of 25. Test the significance of this mean at both 1% and 5% level of significance.
- c. The performance on an Intelligence test of 225 students of grade X is as follows:
Median = 90.8 and SD = 3.5
Determine the confidence limits at the 0.05 and 0.01 levels for estimation of the population median.

7. a. Given the following data of two tests: 3+7=10
- | | |
|----------------|------------|
| Mathematics(X) | English(Y) |
| M = 82 | M = 75 |
| SD = 7 | SD = 8 |
- r=0.65

Predict the probable mark in mathematics of a student whose English score is 80.

- b. Two groups of pre-medical students belonging to two different colleges took a standardized medical aptitude test. The data collected are as follows:

	Group A	Group B
Mean	32	36
SD	6.2	7.4
N	145	82

Is there a significant difference between the two means?

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8. Hypothesis states that there exists no real difference between two population means and that the difference found between sample means is therefore insignificant:

- a. Alternative
- b. Research
- c. Null
- d. None of these

9. Chi-square is used as a test of significance when we have data that are expressed in:

- a. Frequencies
- b. Percentages
- c. Percentiles
- d. t-scores

10. In ANOVA, the within-groups variances must be approximately:

- a. Significant
- b. Random
- c. Directional
- d. Equal

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(PART-B : Descriptive)

Time : 1 hr. 50 min.

Marks: 40

[Answer question no.1 & any three (3) from the rest]

1. Discuss the properties of a Normal Distribution curve. 10

2. The following are error scores on a psychomotor test for four groups of equal subjects tested under four experimental conditions: 10

Group I	Group II	Group III	Group IV
4	9	2	7
5	10	2	7
1	9	6	4
0	6	5	2
2	6	2	7

Apply the analysis of variance to test the null hypothesis.

3. a. Define and explain the term Skewness along with their 5+5 =10 main types.

b. Given a normal distribution with a mean of 50 and standard deviation of 15, what percent of the cases will lie between the scores of 47 and 60?

4. a. What do you understand by the term "goodness of fit"? 2+8 =10

b. The responses of these groups of students on an item of Likert's attitude scale were recorded as:

	SD	D	U	A	SA	Total
Medical	12	18	4	8	12	54
Engineering	48	22	10	8	10	98
Law	10	4	12	10	12	48
Total	70	44	26	26	34	200

At the 1% level of significance do the data indicate that opinions expressed are independent of the kind of college attended by the respondents?