MA EDUCATION
SECOND SEMESTER [SPECIAL REPEAT]
STATISTICS IN EDUCATION
MAE-202
(Use Separate Answer Scripts for Objective & Descriptive)

Duration: 3 hrs.   Full Marks: 70

[**PART-A: Objective**]

Time: 20 min.   Marks: 20

Choose the correct answer from the following: 1×20=20

1. The Normal Probability Curve is a .... curve:
    a. Frequency distribution
    b   t-distribution
    c. c-distribution
    d   All of the above

2. Approximately .... percentage area of curve lies within the limits of ±1 standard deviation from the mean:
    a. 68%
    b. 68.26%
    c. 34.3%
    d. 34.13%

3. The value of standard deviation of Z score is ....
    a. -1σ
    b. -2σ
    c. $\pm1\sigma$
    d. $\pm2\sigma$

4. When the distribution curve is normal, the value of Kurtosis (Ku) is:
    a. 0.236
    b. 0.231
    c. 0.261
    d. 0.263

5. The positive value of Z score shows that ....
    a. Scores lie above the mean
    b. Scores lie below the mean
    c. Scores lie on the mean
    d. Scores scatter very far from the mean

6. The full form of 'df' is:
    a. Decree of freedom
    b. Degree of freedom
    c. Decree of flexibility
    d. Degree of flexibility

7. Correlated sample deals with two set of scores as in:
    a. When two samples are taken from the same population and tested
    b. When two samples are taken from the different population and tested
    c. When one sample is taken from the population and tested twice
    d. When two samples are taken from the population and tested twice

8. In a non-parametric test, ... are not available to the researchers:
    a. Mean
    b. Median
    c. Mode
    d. All of the above

9. The hypothesis which states that no difference exists between the scores of the variables are:
   a. Null hypothesis
   b. Research hypothesis
   c. Alternate hypothesis
   d. Statistical hypothesis

10. A composite procedure for testing the significance of the mean difference between more than two samples is:
    a. Chi-square
    b. ANOVA
    c. t-test
    d. Mann Whitney test

11. The limits within which there is the possibility of existence of the population mean is:
    a. Limits of population mean
    b. Rejection area
    c. Confidence intervals
    d. Standard difference

12. The null hypothesis is always tested at:
    a. 0.01 level of significance
    b. 0.05 level of significance
    c. 0.10 level of significance
    d. Both 0.01 and 0.05 levels of significance

13. Type II error is ………… harmful to/than type I error:
    a. More
    b. Less
    c. Equally
    d. Variably

14. Chi square test was developed by:
    a. Fredrick Robert Helmert
    b. Karl Pearson
    c. Carl Freidrich Gauss
    d. Adraine

15. In linear correlation, the relationship between the two set of scores can be represented graphically in a:
    a. Projectile
    b. Curve
    c. Straight line
    d. Slope

16. The sample mean is significant when:
    a. The population mean is 0
    b. The sample mean is 0
    c. The sample and population mean is not equal
    d. The sample and population mean is equivalent

17. Chi-square test is based on ………………………… of collected data:
    a. Frequency
    b. Normality
    c. Deviation
    d. Position

18. ………. indicates perfect positive correlation:
    a. -2
    b. +1
    c. -1
    d. +2

19. The concept of regression lines help in:
    a. Plotting the variables in a graph
    b. Observing the gaps in relationships
    c. Predicting the change in the value of one variable in relation to the other
    d. All of the above

00. ....shows the direction and magnitude of relationship between two variables:

a. t-test
b. z-test
c. Chi-square
d. Regression

(Descriptive)

[Answer question no.1 & any four (4) from the rest]

1. What is the meaning of Statistics? Give the uses of Statistics in Education and Psychology.

   $3+7=10$

2. Discuss divergence in normality. In case of normal distribution what should be the value of skewness?

   $8+2=10$

3. An intelligence test was administered on a group of 500 cases of class 5. The Mean I.Q. of the students was found 100 and S.D. of I.Q scores was 16. Find how many students of class 5 having the I.Q
   a. below 80 and
   b. above 120.

   $5+5=10$

4. a. When is a non-parametric test used?

   $2+8=10$

   b. 40 boys and 50 girls of class 9 were asked to choose one elective subject among Advanced mathematics, Information Technology, Hindi, Assamese. The choices of the boys and girls are as follows:

Students					
Sex	Advanced Mathematics	Information Technology	Hindi	Assamese	Total
Boys	14	12	6	8	40
Girls	12	20	8	20	50

   Test the hypothesis that, the choice of the subject is dependent upon the gender of students.

5. A mathematics teacher divides his class into two random groups. He provides special coaching in computation skill for an hour daily to the experimental group hoping that such a drill will promote the computation skill of the students of this group. The control group is not provided any such drill. At the end of the session, he administers an achievement test and collects data as under: 10

	Experimental group	Control group
Mean	35	30
SD	4	3
No. of students	48	45

Is the gain in mathematics significant enough?

6. The following are mathematics scores for three groups of equal subjects tested: 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.

7. What is Pearson's correlation coefficient? Find out the Product Moment correlation coefficient: 2+8=10

Individuals	Scores in test X	Scores in test Y
A	15	60
B	25	70
C	20	40
D	30	50
E	35	50

8. Write short notes on: 5+5=10
   a. Chi-square as a test of goodness-of-fit.
   b. Assumptions of ANOVA

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