

**MASTER OF HOSPITAL ADMINISTRATION  
SECOND SEMESTER  
BIostatISTICS  
MHA-203**

Duration : 3 hrs.

Full Marks: 70

Time : 20 min.

( PART-A: Objective )

Marks : 20

*Choose the correct answer from the following:*

1X20=20

- The middle value of an ordered array of numbers
  - Mode
  - Mean
  - Range
  - Median
- Age, Height of a person is an example of
  - Continuous Variable
  - Discrete Variable
  - Nominal Variable
  - Ordinal Variable
- A statement about a population developed for the purpose of testing is called:
  - Hypothesis
  - Hypothesis testing
  - Level of significance
  - Test-statistic
- Chi square test is a
  - Parametric test
  - Non Parametric Test
  - Semi Parametric Test
  - None of the above
- Convenience sampling is a
  - Non-Probability Sampling
  - Probability Sampling
  - Mixed Sampling
  - None of the above
- The probability associated with committing type-I error is
  - $\beta$
  - $1 - \alpha$
  - $1 - \beta$
  - $\alpha$
- Correlation Coefficient values lies between
  - 1 to +1
  - 1 to 0
  - 0 to +1
  - None of the above
- Of type I and type II error, which is traditionally regarded as more serious?
  - Type I
  - Type II
  - Type I and II equally serious
  - None of the above
- In Normal distribution
  - Mean =Median = Mode
  - Mean<Median<Mode
  - Mean > Median> Mode
  - Mean $\neq$ Median $\neq$ Mode
- Judgement sampling is a
  - Probability Sampling
  - Non Probability Sampling
  - Random Sampling
  - None of the above

11. A parameter is:
- a. A sample characteristic
  - b. A population characteristic
  - c. Unknown
  - d. Normal normally distributed
12. According to the empirical rule, approximately what percent of the data should lie within  $\mu \pm \sigma$  ?
- a. 75%
  - b. 68%
  - c. 99,75
  - d. 95%
13. A coefficient of correlation is computed to be -0.90 means that
- a. No relationship between two variables
  - b. The relationship between two variables is strong and but negative
  - c. The relationship between two variables is strong and positive
  - d. Correlation coefficient cannot have this value
14. Sample is subset of
- a. Data
  - b. Group
  - c. Population
  - d. Distribution
15. A coefficient of correlation is computed to be 0.79 means that
- a. The relationship between two variables is weak
  - b. The relationship between two variables is strong and but negative
  - c. The relationship between two variables is strong and positive
  - d. Correlation coefficient cannot have this value
16. What of the following describe the middle part of a group of numbers?
- a. Measure of variability
  - b. Measure of Central tendency
  - c. Measure of Association
  - d. Measure of Shape
17. Education of a person is an example of
- a. Continuous Variable
  - b. Discrete Variable
  - c. Nominal Variable
  - d. Ordinal Variable
18. Of type I and type II error, which is traditionally regarded as more serious?
- a. Type II
  - b. Type I and II equally serious
  - c. Type I
  - d. None of the above
19. Goodness of fit of a distribution is tested by
- a. t test
  - b. Chi square test
  - c. z test
  - d. none of the above
20. Gender is an example of
- a. Continuous Variable
  - b. Discrete Variable
  - c. Nominal Variable
  - d. Ordinal Variable



**[ PART-B : Descriptive ]**

Time: 2 HRS 40 MINS

Marks : 50

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

1. What is population, sample and sampling frame? Write a note on various type of sampling method elaborately with examples. 10
2. An educator would like to know whether gender (male/female) is associated with the preferred type of learning medium (online vs. books). A random sample of 80 people was surveyed and each person was asked to report preferred learning medium. The data that resulted from the survey is summarized in the following table: 10

	ONLINE	BOOKS
FEMALE	25	15
MALE	20	20

State the null hypothesis and use an appropriate test to find out whether gender independent of preferred learning medium. Write the degrees of freedom for this test.

3. Write a short note on Hypothesis testing and different types of error involved in hypothesis testing with examples. 10
4. Calculate the correlation Pearson coefficient for height and Jump distance, whether there is any relation between height and Jump distance 10

Height	Jump
1.63	2.34
1.8	2.48
1.75	2.29
1.86	2.62
1.73	2.64
1.71	2.3
1.75	2.44
1.96	2.67

5. Explain what is meant by parametric and non-parametric test. Write five (5) parametric test and their alternative non parametric test. 10
6. Write a note on central tendency, Measures of Dispersion, Skewness and Kurtosis. 10
7. Calculate mean, median, Mode, standard deviation and coefficient of variation of the following data: 10
- 9, 7, 5, 11, 1, 5, 7, 7, 3
8. We are interested to find out whether subjects with acute chest pain have abnormal systolic (normal = 120 mmHg) blood pressures. 20 subjects presenting themselves to an emergency physician were enrolled. Select an appropriate test for this purpose. (Standard Deviation= 10.66) 10

Patients BP with Chest Pain

125	116	114	125	134	141	120	118	110	125
133	115	121	105	125	136	127	111	105	119

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