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

**SET A**

**[USE OMR SHEET FOR OBJECTIVE PART]**

Duration: 3 hrs.                                                                          Full Marks: 70

**Objective**

Time: 30 mins.                                                                           Marks: 20

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

1. Any measure indicating the centre of a set of data, arranged in an increasing or decreasing order of magnitude, is called a measure of:
   a. Skewness
   b. Symmetry
   c. Measure of central tendency
   d. None of these

2. The sample mean is:
   a. Parameter
   b. Statistics
   c. Variable
   d. None of these

3. Which one is the median of the distribution?
   2 , 20 , 7, 11, 5,4, 8, 9, 12, 16, 23, 10
   a. 5
   b. 6.7
   c. 10
   d. None of these

4. The coefficient of variation is a percentage expression for.............
   a. Standard Deviation
   b. Quartile Deviation
   c. Mean Deviation
   d. None of these

5. .............and.............are types of measures of dispersion.
   a. Nominal, Real
   b. Nominal, Relative
   c. Real, Relative
   d. Absolute, Relative

6. If you secure 97 percentile in an examination, it means that your position is below _____ of the total candidates who had appeared in the exam.
   a. 97 percent
   b. 3 percent
   c. 90 percent
   d. None of the above

7. If A= { 1, 3,4,6,7} and B={ 2, 5, 8,9} and S={ 1,2,3,4,5,6,7,8,9}. Which one is the complementary of event A?
   a. A
   b. B
   c. AUB
   d. None of these

8. Probability of an event lies in between.............
   a. 0 to 1
   b. -1 to 0
   c. 1 to $\infty$
   d. None of these

9. When a dice is thrown, the chance of getting an odd number is.............
   a. 0.3
   b. 0.5
   c. 0.6
   d. None of these

10. When A and B are two independent events then P(AB):
    a. $P(\overline{AB})$
    b. P(AUB)
    c. P(A).P(B)
    d. None of these

11. Pearson's correlation coefficient lies in between.............
    a. $0 < r < 1$
    b. $-1 < r < 0$
    c. $-1 < r < 1$
    d. None of these

12. When the changes of two variable moves in opposite direction, the variables are said to be.............
    a. Positively correlated
    b. Negatively correlated
    c. No correlation
    d. None of these

13. Choose the range and co-efficient of the range of the following data: 63, 89, 98, 125, 79, 108, 117, 68.
    a. R=61, COR= 0.22
    b. R= 61, COR=0.33
    c. R= 62, COR= 0.33
    d. R=62, COR = 0.22

14. Which of the following are methods under measures of dispersion?
    a. Standard deviation
    b. Mean deviation
    c. Range
    d. All of the above

15. When the data is in rank order, the correlation is calculated by using:
    a. Pearson's Correlation Coefficient
    b. Spearman's Rank Correlation Coefficient
    c. Scatter Diagram
    d. None of These

16. What does probability mean?
    a. The total number of possible outcomes in an event
    b. The ratio of favorable outcomes to all outcomes
    c. The chance of an event happening
    d. How certain an event will occur

17. Two unbiased coins are tossed. What is the probability of getting at most one head?
    a. 3/4
    b. 1/6
    c. 1/3
    d. ½

18. While computing the crude death rate, components considered are.............
    a. Total number of deaths, Total population
    b. Total number of deaths, Total Mid-year population
    c. Total number of deaths, Total population beginning of the year
    d. None of these

19. The age-specific death rates are calculated by using the formula:
    a. $\frac{Dx}{Px} \times 1000$
    b. $\frac{nD_\lambda}{nP_\lambda} \times 1000$
    c. $\frac{nD_\lambda}{nP_\lambda} \times 100$
    d. All of these

20. The mortality rate which considers children below one year is known as.............
    a. Crude Mortality rate
    b. Infant Mortality rate
    c. Age Specific Mortality rate
    d. None of these

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## $\left(\text{Descriptive}\right)$

**Time : 2 Hr. 30 Mins.**                                                                    **Marks : 50**

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

1. Discuss different measures of dispersion.. Distinguish between Absolute     8+2=10
   and Relative Measures of Dispersion.

2. a) Mention uses of different measures of central tendency.     4+6=10
   b) A survey has been conducted by a group of students on 20
   households in a locality
   As town in the following frequency distribution table. Find the
   mode for the given data.

   | Size of Family | 1-3 | 3-5 | 5-7 | 7-9 | 9-11 |
   |---|---|---|---|---|---|
   | No. of Families | 7 | 8 | 2 | 2 | 1 |

3. a) What is the application Coefficient of variation?     2+8=10
   b) Following are the runs scored by two batsmen A and B in different
   Matches

   | A | 80 | 95 | 85 | 55 | 45 |
   |---|---|---|---|---|---|
   | B | 75 | 90 | 65 | 50 | 35 |

   Find who is a better run getter and more consistent player.

4. Define with example:     2.5×4=10
   i) mutually exclusive events
   ii) Equally likely events
   iii) Independent events &
   iv) Exhaustive events

5. A box contains 5 black, 7 red and 6 green balls. Three balls are drawn from     10
   this box one after the other without replacement. What is the probability
   that the three balls are?
   a) All black balls
   b) Two red and green
   c) One black and two red
   d) Of different colours

6. a) What do you mean by correlation between two variables?     2+6+2=10
   b) Describe different methods of studying correlation.
   c) Briefly describe uses of Correlation Coefficient.

7. a) When Spearman's Rank Correlation Coefficient is used?  2+8=10
   b) A random sample of recent repair jobs was selected and estimated
      cost and actual cost were recorded. Calculate the value of
      Spearman's Rank Correlation Coefficient and interpret the
      resultfrom the table given below.

| Estimated Cost | 300 | 450 | 800 | 250 | 500 | 975 | 475 | 400 |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Actual Cost    | 273 | 486 | 734 | 297 | 631 | 872 | 396 | 457 |

8. Define different measures of Mortality. Discuss Merits and Demerits of  7+3=10
   Measures of Mortality.

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