



BRAINWARE UNIVERSITY

Term End Examination 2021 - 22

Programme – Bachelor of Pharmacy

Course Name – Biostatistics and Research Methodology - Theory

Course Code - BP801T

(Semester VIII)

Time allotted : 1 Hrs.30 Min.

Full Marks : 75

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question)

1 x 75=75

Choose the correct alternative from the following :

- (1) What is the correct statement of probability?

| | |
|---------------|---------------|
| a) $p \geq 0$ | b) $p \leq 0$ |
| c) $p+q=1$ | d) $p+q=0$ |
- (2) which one is the correct statement for null skewed graph?

| | |
|---------------------|---------------------|
| a) mean=median=mode | b) mean>median>mode |
| c) mean>median>mode | d) none of above |
- (3) While pictorial graph forming when do you use sparse list?

| | |
|---------------------------------|-------------------------------------|
| a) when data set is much larger | b) when data set is not that larger |
| c) when data set is very small | d) when data set is calculative |
- (4) What is the formula of Quadric Mean?

| | |
|-----------------------------|-------------------------|
| a) $(\text{mean})^2$ | b) $\text{mean}/2$ |
| c) $(\sqrt{\text{mean}})^2$ | d) $\sqrt{\text{mean}}$ |
- (5) What is the space complexity formula of adjacency list?

| | |
|------------------|------------------|
| a) $\theta=n+2e$ | b) $\theta=n/2e$ |
| c) $\theta=n*2e$ | d) $\theta=n-2e$ |
- (6) The main purpose of research in education is to

| | |
|-----------------------------------------------|----------------------------------------------------------|
| a) help in individual's personal growth | b) increase the social prestige of an individual |
| c) increase individual's market value of jobs | d) help the individual to become an eminent educationist |
- (7) Midrange is the parameter of :

| | |
|---------------------|-----------------------|
| a) Central Tendency | b) Central Dispersion |
| c) Both | d) none of above |

- a) 0.004
- b) 0.2
- c) 0.8
- d) 0.1

(21) If a series of values consists of 21 numbers, then, for finding the median, we ordered the series ascending and we use:

- a) The 11th value in the ordered series
- b) The mean between the 10th and 11th values
- c) The mean between the 11th and 12th values
- d) The 10th value in the ordered series

(22) If on a group of 457 patients, for a risk factor we calculated a Relative Risk $RR = 12.74$, the possibility of developing the disease being investigated is:

- a) very high when exposed to the factor
- b) very small when exposed to the factor
- c) the same in the case of exposure in the case of non-exposure
- d) lower in the exposed than in the unexposed, RR being less than 100

(23) The Sensitivity (SN) of a clinical trial

- a) is the ratio of sick patients, diagnosed as positive, and the total number of sick patients.
- b) is the ratio of healthy subjects, diagnosed as negative, and the total number of healthy subjects
- c) is the ratio of sick patients, diagnosed as negative, and the total number of patients
- d) is the ratio of sick patients, diagnosed as negative, and the total number of healthy persons

(24) For a clinical trial, the Sensitivity is $S_n = 0.562$ and Specificity is $S_p = 0.893$. This means that:

- a) The test is a valuable test because both indicators are more than 50%
- b) The test is a worthless test, since it gives errors when detecting both sick and healthy subjects
- c) The test is a worthless test, because the sensitivity is too low (lower than 75%)
- d) a perfect test

(25) Pearson correlation coefficient, denoted by r , measures:

- a) The scattering strength of data for a statistical series
- b) The strength of the correlation between the mean and median
- c) The tendency of simultaneous increase or decrease, or inverse evolution, for two numerical parameters
- d) all above

(26) For a Histogram chart the following statements are true:

- a) Each bar (class or column) is the same width
- b) We do not lose any information of the original data series by making such a chart
- c) The height of the bars is proportional to that class's absolute frequency (number of individuals in the class)
- d) all above

(27) A Gauss curve, the curve of a normal distribution, has the following features (where m = mean, s = standard deviation):

- a) in the interval $[m - 1s; m + 1s]$ about $2/3$ (~ 68%) of the series' values are located
- b) in the interval $[m - 2s; m + 2s]$ about 95% of the series' values are located
- c) in the interval $[m - 3s; m + 3s]$ about 99% of the series' values are located
- d) All above

(28) The Student's t test is:

- a) Sample
c) median
- b) Population
d) None of these
- (41) All of the following are an example of quantitative data except
a) Gender
c) Height
- b) Weight
d) Temperature
- (42) Which one is formula for empirical rule
a) $\mu \pm 1SD = 60\%$
c) $\mu \pm 1SD = 65\%$
- b) $\mu \pm 1SD = 68\%$
d) $\mu \pm 1SD = 70\%$
- (43) The most frequent occurring observation is
a) Mean
c) Median
- b) Mode
d) SD
- (44) Sample SD is denoted by
a) \bar{x}
c) S^2
- b) S
d) σ
- (45) A hospital claims, its ambulance response time is less than 10 minutes, it can be written as
a) $H > 10 \text{ min}, AH \leq 10 \text{ min}$
c) $H \leq 10 \text{ min}, AH > 10 \text{ min}$
- b) $H \neq 10 \text{ min}, AH = 10 \text{ min}$
d) $H - 10 \text{ min}, AH / 10 \text{ min}$
- (46) In normal distribution curve, mean of the data lie on the
a) Right end
c) Centre
- b) Left end
d) None of these
- (47) Which one the following is true for standard normal distribution;
a) Mean = 0
c) Mean = 50
- b) Mean = 100
d) Mean = 0.5
- (48) All of the following are true for student t-test except
a) Sample size 30
c) $\sigma^2 = \text{unknown}$
- b) Approximate Z when $N > 30$
d) Use for qualitative data
- (49) All of the following are true for measure of dispersion except
a) Mean
c) Range
- b) Inter-quartile range
d) Variance
- (50) First step in calculating median is
a) Calculate range
c) Count the data
- b) Arrange data in ascending order
d) None of these
- (51) The area under normal distribution curve is
a) 1
c) 0
- b) 0.5
d) None of these
- (52) Level of education is
a) Nominal data
c) Discrete data
- b) Ordinal data
d) None of these
- (53) The sum of the absolute deviation about mean for the values: 2, 4, 6, 8, and 10 is all ways:
a) Not equal to zero
c) 2
- b) 10
d) Not possible

- (54) The mean, median and mode the given values: 42, 42, 42, 42, 42, 42, are
- a) Mean=42, median=44, mode=46 b) The same value
c) 12 d) 0
- (55) The square root of the mean of the square deviation about mean is known as
- a) The variance b) Central value
c) Standard deviation d) The average value
- (56) The probability of any event is defined as the number of the favorable events divided by the number of the sample space. Sample space is defined as:
- a) Even number of out comes b) Odd number of out comes
c) All possible out comes of an Experiment. d) None of all these
- (57) A major purpose of doing research is to infer, or generalize, from a sample to a larger population this method is known as
- a) Sampling Design b) Probability
c) Measures of dispersion d) Testing of hypothesis
- (58) If we have the values $x_1 = 80$, $x_2 = 90$, $x_3 = 100$, $x_4 = 110$, $x_5 = 120$. the mean of the data is
- a) 100 b) 0
c) 90 d) 20
- (59) The sum of the absolute deviation about mean is always
- a) Positive b) Zero and negative both at a time
c) Negative d) Zero
- (60) Which of the measures of variability is NOT dependent on the exact values of every measurement?
- a) Mean deviation b) Range
c) Variance d) Standard deviation
- (61) Z-test is always used to test the population mean whether population variance is known or unknown when sample size n should be
- a) less than 30 b) equal or greater than 30
c) no condition d) none of these
- (62) All possible out comes of an experiment is known as sample space. When a coin is tossed 3 times then total sample space is
- a) 8 b) 6
c) 0 d) 10
- (63) The probability of any event is defined as the number of the favorable events divided by the sample space.
- a) The sum of the probabilities should be equal to one b) The probability of any event lies between -1 and +1
c) The probability of any event can't be negative d) The probability lies between 0 and 1
- (64) The minimum size of a Contingency table is
- a) 2×2 b) 1×1
c) 10×10 d) No minimum Size
- (65) In a contingency table with 4 rows and 6 columns then degree of freedom is

- a) 15
c) 24
- b) 4
d) 6
- (66) The ANOVA method is used to test the equality of more than two population means at a time the test statistic is used in this method is known as:
- a) t-test
c) chi-square test
- b) F-test
d) z-test
- (67) Random Sampling or Probability sampling includes all the following techniques, except
- a) Simple random sampling
c) Stratified random Sampling
- b) Cluster sampling
d) Purposive Sampling
- (68) Which scale of measurement has an absolute zero?
- a) Nominal
c) Ordinal
- b) Interval
d) Ratio
- (69) The statistical approach which helps the investigator to decide whether the outcome of the study is a result of factors planned within design of the study or determined by chance is called
- a) Descriptive statistics
c) Inferential statistics
- b) Normal distribution
d) Standard deviation
- (70) All the following are measures of central tendency, except
- a) Mean
c) Median
- b) Mode
d) Variance
- (71) A measure of central tendency in which is calculated by number arranging in numerical order is
- a) Standard deviation
c) Range
- b) Median
d) Mode
- (72) The indices used to measure variation or dispersion among scores are all, except
- a) Standard deviation
c) Variance
- b) Range
d) Mode
- (73) The Median value is the
- a) 25th percentile
c) 50th percentile
- b) 75th percentile
d) 95th percentile
- (74) The formula given below is computational formula for
- a) Variance
c) Mean
- b) Standard deviation
d) t-statistic
- (75) Which is NOT a characteristic of normal distribution?
- a) Symmetric
c) Bell-shaped
- b) Mean = median = mode
d) Negative skewness