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) (mean)^2 b) mean/2
c) (√mean)^2 d) √mean

(5) What is the space complexity formula of adjacency list?

a) θ=n+2e b) θ=n/2e
c) θ=n*2e d) θ=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 e ducationist

(7) Midrange is the parameter of :

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

(8) What is Formplus?

a) Primary data collection tool
b) secondary data collection tool
c) Both primary and secondary data collection tool
d) All of above

(9) Accuracy level of Secondary data i.e. journal paper etc are

a) More
b) Relatively less
c) 100% accurate
d) none of above

(10) What is the absolute value fucntion of a graph?

a) f|x|=x+1
b) f(x)=mx+b
c) f(x)=mx-1
d) f(x)=|x|

(11) f(x)=ax^2+bx+c this represents the graph of

a) Parabola
b) Heperbola
c) Polynomial
d) Rational

(12) Which one is the correct statement regarding Exponential Graphical reprresentation?

a) f(x)=1/(x)
b) f(x)=e^x
c) f(x)=ex
d) f(x)=tan(x)

(13) The relationship between logarithimic function and exponential function is defined with the logic;

a) Proportional with each other
b) inversely proportional with each other
c) Logarithimic functions are inverse of exponential function
d) Logarithimic function = exponential function

(14) Consider the data set.6,8,14,23,3,5,2. What is median value?

a) 14
b) 6
c) 7
d) 8

(15) Consider the data set 7,4,9,4,7,13,11. Which kind of Mode set is this?

a) unimodal
b) Bimodal
c) Trimodal
d) Multimodal

(16) If Q1 value is 11, Q2 value is 14 and Q3 value is 17. What is the QD (Quartile Deviation) value?

a) 6
b) 3
c) 2
d) None of above

(17) In Binomial distribution if we consider the probability formula is p+q=1, where p stands for?

a) Rate of success
b) Rate of Failure
c) Rate of error
d) rate of probability

(18) The fundamental statistical indicators are:

a) Mean
b) Median
c) Variance
d) Standard deviation

(19) Standard deviation

a) is the square root of variance
b) is the square of variance
c) Both of two
d) None of two

(20) If the average of a series of values is 10 and their variance is 4, then the coefficient of variation (= the ratio standard deviation / average) is:

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 ordere d the series ascending and we use:

a) The 11th value in the ordered series
b) The mean between the 10th and 11th value s
c) The mean between the 11th and 12th value s
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 unexpose d, RR being less than 100

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

a) is the ratio of sick patients, diagnosed as po sitive, and the total number of sick patient s.
b) is the ratio of healthy subjects, diagnosed a s negative, and the total number of healthy subjects
c) is the ratio of sick patients, diagnosed as ne gative, and the total number of patients
d) is the ratio of sick patients, diagnosed as ne gative, and the total number of healthy pers ons

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

a) The test is a valuable test because both indi cators are more than 50%
b) The test is a worthless test, since it gives er rors when detecting both sick and healthy s ubjects
c) The test is a worthless test, because the sen sitivity 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 statisti cal series
b) The strength of the correlation between the mean and median
c) The tendency of simultaneous increase or d ecrease, or inverse evolution, for two nume rical parameters
d) all above

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

a) Each bar (class or column) is the same widt h
b) We do not lose any information of the origi nal data series by making such a chart
c) The height of the bars is proportional to tha t class's absolute frequency (number of ind ividuals 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) a nonparametric test
b) a test for comparing averages
c) a test for comparing variances
d) a test for comparing co variances

(29) The result of a statistical test, denoted p, shall be interpreted as follows:

a) the null hypothesis H0 is rejected if p <0.05
b) the null hypothesis H0 is rejected if p≥ 0.05
c) the alternate hypothesis H1 is rejected if p> 0.05
d) the null hypothesis H0 is accepted if p <0.05

(30) If, after performing a Student test for comparison of means, we obtain p = 0.0256, then:

a) We reject H0 and accept H1
b) We accept H0
c) We reject H1
d) We cannot decide

(31) Pulse rate or weight of patient are known as;

a) Nominal data
b) Discrete data
c) Continuous data
d) Random variable

(32) In testing hypothesis we use different level of significance to test Ho, in most situations level of significance is not given then we have to use;

a) 0.01
b) 0.05
c) 0.02
d) 0.1

(33) When we make a 95% confidence interval for the population mean using t or z test then probability or chance of error will be;

a) 0.05
b) 1
c) 0.1
d) 5

(34) In all research analysis it is not possible to study whole population, we always estimate population parameters on the basis of

a) Population information
b) We could not estimate parameters
c) Sample information
d) Estimation of samples

(35) Estimation is the process of estimating parameters on the basis of

a) Parameters
b) A and B
c) Statistics
d) None of the above

(36) When the size of samples is increasing then variance of sample means is also

a) Increases
b) Constant
c) Decreases
d) None of the above

(37) Student t-test is used to test population mean when population variance is always unknown and the sample size is

a) Less than 30
b) Any size
c) More than 30
d) None of them

(38) If Chi-square test's calculated value is less than critical value then oHis always be

a) Accepted and rejected both
b) Rejected
c) Accepted
d) None of these

(39) square root of the mean of squire deviation is known as;

a) variance
b) SD
c) median
d) Mean

(40) A subset of all the measurement of interest is;

a) Sample
b) Population
c) median
d) None of these

(41) All of the following are an example of quantitative data except

a) Gender
b) Weight
c) Height
d) Temperature

(42) Which one is formula for empirical rule

a) $\mu \pm$ 1SD = 60%
b) $\mu \pm$ 1SD = 68%
c) $\mu \pm$ 1SD = 65%
d) $\mu \pm$ 1SD = 70%

(43) The most frequent occurring observation is

a) Mean
b) Mode
c) Median
d) SD

(44) Sample SD is denoted by

a) $\bar{x}$
b) S
c) S^2
d) σ

(45) A hospital claims, its ambulance response time is less than 10 minutes, it can be wri tten as

a) H>10 min, AH$\leq$ 10 min
b) H$\neq$10 min, AH= 10 min
c) H$\leq$10 min, AH> 10 min
d) H- 10 min, AH/ 10 min

(46) In normal distribution curve, mean of the data lie on the

a) Right end
b) Left end
c) Centre
d) None of these

(47) Which one the following is true for standard normal distribution;

a) Mean = 0
b) Mean = 100
c) Mean = 50
d) Mean = 0.5

(48) All of the following are true for student t-test except

a) Sample size 30
b) Approximate Z when N>30
c) σ= unknown
d) Use for qualitative data

(49) All of the following are true for measure of dispersion except

a) Mean
b) Inter-quartile range
c) Range
d) Variance

(50) First step in calculating median is

a) Calculate range
b) Arrange data in asscending order
c) Count the data
d) None of these

(51) The area under normal distribution curve is

a) 1
b) 0.5
c) 0
d) None of these

(52) Level of education is

a) Nominal data
b) Ordinal data
c) Discrete data
d) None of these

(53) The sum of the absolute deviation about mean for the values: 2, 4, 6, 8, and 10 is al ways:

a) Not equal to zero
b) 10
c) 2
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 a

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 divide d 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 larg er 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 x1 = 80, x2= 90, x3= 100, x4= 110, x5=120.the mean of the d ata 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 kno wn 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 t ossed 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 divide d by the sample space.

a) The sum of the probabilities should be equ al to one
b) The probability of any event lies between - 1 and +1
c) The probability of any event can't be negat ive
d) The probability lies between 0 and 1

(64) The minimum size of a Contingency table is

a) 2x2
b) 1x1
c) 10x10
d) No minimum Size

(65) In a contingency table with 4 rows and 6 columns then degree of freedom is

a) 15
b) 4
c) 24
d) 6

(66) The ANOVA method is used to test the equality of more then two population means at a time the test statistic is used in this method is known as:

a) t-test
b) F-test
c) chi-square test
d) z-test

(67) Random Sampling or Probability sampling includes all the following techniques, ex cept

a) Simple random sampling
b) Cluster sampling
c) Stratified random Sampling
d) Purposive Sampling

(68) Which scale of measurement has an absolute zero?

a) Nominal
b) Interval
c) Ordinal
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 b y chance is called

a) Descriptive statistics
b) Normal distribution
c) Inferential statistics
d) Standard deviation

(70) All the following are measures of central tendency, except

a) Mean
b) Mode
c) Median
d) Variance

(71) A measure of central tendency in which is calculated by number arranging in numer ical order is

a) Standard deviation
b) Median
c) Range
d) Mode

(72) The indices used to measure variation or dispersion among scores are all, except

a) Standard deviation
b) Range
c) Variance
d) Mode

(73) The Median value is the

a) 25th percentile
b) 75th percentile
c) 50th percentile
d) 95th percentile

(74) The formula given below is computational formula for

a) Variance
b) Standard deviation
c) Mean
d) t-statistic

(75) Which is NOT a characteristic of normal distribution?

a) Symmetric
b) Mean = median = mode
c) Bell-shaped
d) Negative skewness