



BRAINWARE UNIVERSITY

Term End Examination 2021 - 22

Programme – Bachelor of Science (Honours) in Biotechnology

Course Name – Biostatistics

Course Code - BBTD601A

(Semester VI)

Time allotted : 1 Hrs.15 Min.

Full Marks : 60

[The figure in the margin indicates full marks.]

Group-A

(Multiple Choice Type Question)

1 x 60=60

Choose the correct alternative from the following :

- (1) How many axioms are there in axiomatic probability?

a) 2	b) 3
c) 3	d) 1
- (2) Which one is the correct statement for a 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 Quadratic Mean?

a) $(\text{mean})^2$	b) $\text{mean}/2$
c) $(\sqrt{\text{mean}})^2$	d) $\sqrt{\text{mean}}$
- (5) A PubMed journal is considered as :

a) Primary Data	b) Secondary Data
c) Quarternery data	d) All of above
- (6) Wolfram Language is discovered by whom?

a) Steve Wolfram	b) S.J. Wolfram
c) Stephen Wolfram	d) Rodger Wolfram
- (7) Why $\log 0$ does not exist?

a) $\log 0$ defines in the negative part of the graph	b) It does not cut through the origin of the graph?
c) It cut through the origin of the graph?	d) all above

- (8) Basis of data types, primary data are :
- a) Real time data
 - b) past data
 - c) error data
 - d) success data
- (9) What is the correct statement of Linear function of graph?
- a) $f(x)=x+1$
 - b) $f(x)=|x|$
 - c) $f(x)=mx+b$
 - d) $f(x)=mx-1$
- (10) What is the absolute value function 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) Hyperbola
 - c) Polynomial
 - d) Rational
- (12) Which one is the correct statement regarding Exponential Graphical representation?
- a) $f(x)=1/(x)$
 - b) $f(x)=e^x$
 - c) $f(x)=e^x$
 - d) $f(x)=\tan(x)$
- (13) Logarithmic Graph more or less calculated with the base of:
- a) 1
 - b) 0
 - c) 100
 - d) 10
- (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) Midrange formula is?
- a) Max-Min
 - b) $\text{Max-Min}/2$
 - c) $\text{Max+Min}/2$
 - d) None of above
- (18) The stages of a malignant disease (cancer) is recorded using the symbols 0, I, II, III, IV. We say that the scale used is:
- a) Alphanumeric
 - b) Numerical
 - c) . Ordinal
 - d) Nominal
- (19) The average of a series of numerical values is:
- a) An indicator of central tendency for the values of the series
 - b) Lower than the minimum value in the series
 - c) Both of two
 - d) None of two
- (20) Standard deviation
- a) is the square root of variance
 - b) is the square of variance
 - c) Both of two
 - d) None of two

(21) Having two sets of data, we can compare their scattering as follows:

- a) For approximately equal standard deviation values, the one with a higher average is more scattered
- b) If both the averages and standard deviations differ much between the series, we can compare scattering using the coefficient of variation
- c) Both two
- d) None two

(22) The median of a series of numerical values is:

- a) Equal to the average
- b) A graph or hart
- c) A number
- d) A frequency table

(23) The first quartile of a series of values is:

- a) The numeric value for which a quarter of the series' values are lower
- b) The value of the ordered series located at 75% of the number of values in the series
- c) The numeric value for which a quarter of the series' values are higher

(24) 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

(25) 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

(26) 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

(27) The correlation coefficient computed for two parameters measured in 429 patients is $r=0.829$. This means that

- a) The two parameters are directly correlated, and the link is weak - r is positive and close to 0
- b) The two parameters are inversely correlated, and the link is strong - r is negative and close to 1
- c) There are too few cases (under 30) and we do not trust this coefficient's value
- d) The two parameters are directly correlated, and the link is strong - r is positive and close to 1

(28) A Frequency Polygon is

- a) A graph representing by a broken line the absolute frequencies of classes of a data series
- b) A statistical indicator that shows the scattering of a series of values
- c) A graph that contains less information than the corresponding histogram
- d) none of above

- (29) 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
- (30) 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
- (31) The result of a statistical test, denoted p , shall be interpreted as follows:
- a) the null hypothesis H_0 is rejected if $p < 0.05$
 - b) the null hypothesis H_0 is rejected if $p > 0.05$
 - c) the alternate hypothesis H_1 is rejected if $p > 0.05$
 - d) the null hypothesis H_0 is accepted if $p < 0.05$
- (32) If, after performing a Student test for comparison of means, we obtain $p = 0.0256$, then:
- a) We reject H_0 and accept H_1
 - b) We accept H_0
 - c) We reject H_1
 - d) We cannot decide
- (33) Pulse rate or weight of patient are known as;
- a) Nominal data
 - b) Discrete data
 - c) Continuous data
 - d) Random variable
- (34) Classification of objects or persons into classes or groups in such a way that only one object or person falls in only one group at a time is called as
- a) Mutually exclusive
 - b) Dependent
 - c) None Mutually exclusive
 - d) Independent
- (35) 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
- (36) 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
- (37) Estimation is the process of estimating parameters on the basis of
- a) Parameters
 - b) A and B
 - c) Statistics
 - d) None of the above
- (38) If random sample size 4 taken from a population whose variance is 16. When sampling is done with replacement than variance of the sample mean is
- a) 2
 - b) 4
 - c) 16
 - d) 48
- (39) When two dice and a single coin are tossed together then total sample spaces will be
- a) 36
 - b) 24
 - c) 14
 - d) 72
- (40) The minimum d.f for the Chi-square test of independence or association is always
- a) 0
 - b) 1
 - c) 2
 - d) $N-1$

- c) Hypothesis testing
 (55) Appropriate graph to display marital status (Married, Unmarried, Divorced, widow) is
 a) Frequency polygon
 c) Pie chart
- d) Calculation p-value
 b) Scatter plot
 d) Histogram
- (56) Level of education is
 a) Nominal data
 c) Discrete data
- b) Ordinal data
 d) None of these
- (57) The sum of the absolute deviation about mean for the values: 2, 4, 6, 8, and 10 is always:
 a) Not equal to zero
 c) 2
- b) 10
 d) Not possible
- (58) The mean of a data is defined as
 a) The sum of the values is multiplied by the numbers of the values
 c) Divide every value by a constant number
- b) The sum of the values divided by the numbers of the value
 d) The square of values is divided by the numbers of the values
- (59) When we add or subtract any constant values in the original values then, it is known as
 a) Deviation about mean
 c) Change of origin
- b) Change of scale
 d) Mean deviation
- (60) The square root of the mean of the square deviation about mean is known a
 a) The variance
 c) Standard deviation
- b) Central value
 d) The average value