BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Post Graduate Diploma in Hospital Management

Course Name – Bio Statistics

Course Code - PGDHMC306

Semester / Year - Semester III

Time allotted : 75 Minutes | Full Marks : 60

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 60=60

1. *(Answer any Sixty)*

(i) What is true about Data Visualization?

a) Data Visualization is used to communicate information clearly and efficiently to users by the usage of information graphics such as tables and charts

b) Data Visualization helps users in analyzing a large amount of data in a simpler way

c) Data Visualization makes complex data more accessible, understandable, and usable

d) All of these

(ii) Sample statistics are also represented as

a) Lower Case Greek Letter

b) Roman Letters

c) Associated Roman Alphabets

d) Upper Case Greek Letter

(iii) Graphical and numerical methods are specialized processes utilised in

a) Education Statistics

b) Descriptive Statistics

c) Business Statistics

d) Social Statistics

(iv) Which of the following is the explanatory variable in this study?

a) Exercise

b) Lung capacity

c) Smoking or not

d) Occupation

(v) Census reports used as a source of data is

a) Primary source
b) Secondary source
c) Organized data
d) None of these

(vi) Primary data and _____ data are same

a) Grouped
b) Secondary data
c) Ungrouped
d) None of these

(vii) What is the difference between a bar chart and a histogram?

a) Bar charts represent numbers, whereas histograms represent percentages
b) A histogram does not show the entire range of scores in a distribution
c) There are no gaps between the bars on a histogram
d) Bar charts are circular, whereas histograms are square

(viii) Since the population size is always larger than the sample size, then the sample statistic

a) can never be larger than the population parameter
b) can never be equal to the population parameter
c) Always zero
d) None of these

(ix) A circle in which sectors represents various quantities is called

a) Histogram
b) Frequency Polygon
c) Pie Chart
d) Component Bar chart

(x) What measure of central tendency is shown in a box plot diagram

a) Mode
b) Median
c) Weighted Mean
d) Geometric mean

(xi) Dividing the upper and lower limits of a particular class we get

a) Class Interval
b) Class Frequency
c) Class Boundary
d) Class Mark

(xii) The range of a sample gives an indication of the

a) way in which the values cluster about a particular point
b) number of observations bearing the same value
c) maximum variation in the sample
d) degree to which the mean value differs from its expected value

(xiii) Scores that differ greatly from the measures of central tendency are called:

a) Raw scores
b) The best scores
c) Extreme scores
d) Z-scores

(xiv) The arithmetic mean is highly affected by

a) Moderate values
b) Extremely small values
c) Odd values
d) None of these

(xv) When the values in a series are not of equal importance, we calculate the:

a) Arithmetic mean
b) Geometric mean
c) Weighted mean
d) Mode

(xvi) The midpoint of the values after they have been ordered from the smallest to the largest or the largest to the smallest is called:

a) Mean
b) Median
c) Lower quartile
d) Upper quartile

(xvii) In a moderately asymmetrical distribution, the value of mean and mode is 15 and 18 respectively. The value of median will be:

a) 48
b) 18
c) 16
d) 15

(xviii) the positive square-root of the arithmetic mean of the Square of the deviations of the given observation from their arithmetic mean is called

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

(xix) Calculate the standard deviation for the following data - 5, 8, 7, 11, 14

a) 3.14
b) 3.16
c) 3.12
d) 3.15

(xx) Find the value of range for the following Data 7, 9, 6, 8, 11, 10, 4

a) 5
b) 7
c) 8
d) 9

(xxi) The measurements of spread or scatter of the individual values around the central point is called:

a) Measures of dispersion
b) Measures of central tendency
c) Measures of skewness
d) Measures of kurtosis

(xxii) If Q3=20 and Q1=10, the coefficient of quartile deviation is:

a) 3
b) 1/3
c) 2/3
d) 1

(xxiii) The sum of all probabilities equal to

a) 4
b) 1
c) 3
d) 2

(xxiv) A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?

a) 10/21
b) 11/21
c) 2/7
d) 5/7

(xxv) Three unbiased coins are tossed. What is the probability of getting at most two heads?

a) ¾ b) ¼

c) 3/8 d) 7/8

(xxvi) What is the area under a conditional Cumulative density function?

a) 0 b) Infinity

c) 1 d) Changes with CDF

(xxvii) A table with all possible value of a random variable and its corresponding probabilities is called _____

a) Probability Mass Function b) Probability Density Function

c) Cumulative distribution function d) Probability Distribution

(xxviii) If a variable can certain integer values between two given points is called_____

a) Continuous random variable b) Discrete random variable

c) Irregular random variable d) Uncertain random variable

(xxix) If two events (both with probability greater than 0) are mutually exclusive, then:

a) They also must be independent. b) They also could be independent

c) They cannot be independent d) None of these

(xxx) Which of the following is the most common example of a situation for which the main parameter of interest is a population proportion?

a) A binomial experiment b) A normal experiment

c) A randomized experiment d) An observational study

(xxxi) A poll is done to estimate the proportion of adult Americans who like their jobs. The poll is based on a random sample of 400 individuals. What is the "conservative" margin of error of this poll?

a) 0.10 b) 0.05

c) 0.04 d) 0.025

(xxxii) The number of arrivals of delivery trucks per hour at a loading station is an example of which of the following processes?

a) Binomial
b) Hypergeometric
c) Poisson
d) Normal

(xxxiii) The mean, median and mode for binomial distribution will be equal when

a) $p=0.5$
b) $p<0.5$
c) $p>0.5$
d) $p=1$

(xxxiv) The covariance is

a) A measure of the strength of relationship between two variables
b) Dependent on the units of measurement of the variables
c) An unstandardized version of the correlation coefficient.
d) All of these

(xxxv) A correlation of .7 was found between time spent studying and percentage on an exam. What is the proportion of variance in exam scores that can be explained by time spent studying?

a) .70
b) .49
c) .30
d) .75

(xxxvi) If Pearson's correlation coefficient between stress level and workload is .8, how much variance in stress level is not accounted for by workload?

a) 0.2
b) 0.02
c) 0.08
d) 0.36

(xxxvii) Homogeneity of three or more population correlation coefficients can be tested by

a) t-test
b) Z-test
c) ?2-test
d) F-test

(xxxviii) If the correlation coefficient between the variables X and Y is ?, the correlation coefficient between X2 and Y2 is

a) ?
b) ?2
c) 0
d) 1

(xxxix) The process of constructing a mathematical model or function that can be used to predict or determine one variable by another variable is called

a) regression
b) Correlation
c) Residual
d) Outlier plot

(xl) In the regression equation Y = 75.65 + 0.50X, the intercept is

a) 0.50
b) 75.65000000000001
c) 1.00
d) indeterminable

(xli) For a data set the regression equation is Y = 21 - 3X. The correlation coefficient for this data

a) must be 0
b) is negative
c) must be 1
d) is positive

(xlii) If X and Y in a regression model are totally unrelated

a) the correlation coefficient would be -1
b) the coefficient of determination would be 0
c) the coefficient of determination would be 1
d) the SSE would be 0

(xliii) What is b0 in regression analysis?

a) The value of the outcome when all of the predictors are 0.
b) The relationship between a predictor and the outcome variable.
c) The value of the predictor variable when the outcome is zero.
d) The gradient of the regression line.

(xliv) The correlation coefficient is used to determine

a) A specific value of the y variable given the specific value of the x variable

b) A specific value of the x variable given the specific value of the y variable

c) The strength of the relationship between x and y variable

d) None of these

(xlv) To test the relationship between y (dependent) and x (independent) continuous variables, which of the following plot best suited?

a) Scatter plot

b) Bar chart

c) Histogram

d) Pie chart

(xlvi) What would be the critical values of Z for 98% confidence interval for a two-tailed test ?

a) Dataset is a sample

b) Dataset is a population

c) Dataset could be either a sample or a population

d) Dataset is from a census

(xlvii) What would be the critical values of Z for 98% confidence interval for a two-tailed test?

a) +/- 2.33

b) +/- 1.96

c) +/- 1.64

d) +/- 2.55

(xlviii) What is the relationship between significance level and confidence level?

a) Significance level = Confidence level

b) Significance level = 1- Confidence level

c) Significance level = 1/Confidence level

d) Significance level = sqrt (1 – Confidence level)

(xlix) Which of the following statements sounds like a null hypothesis?

a) The coin is not fair

b) There is a correlation in the population

c) There is no difference between male and female incomes in the population

d) The defendant is guilty

(l) What is the standard deviation of a sampling distribution called?

a) Sampling error
b) Sample error
c) Standard error
d) Simple error

(li) A _____ is a subset of a _____.

a) Sample, population
b) Population, sample
c) Statistic, parameter
d) Parameter, statistic

(lii) As a general rule, researchers tend to use ____ percent confidence intervals.

a) 0.99
b) 0.95
c) 0.5
d) None of these

(liii) _____ are the values that mark the boundaries of the confidence interval.

a) Confidence intervals
b) Confidence limits
c) Levels of confidence
d) Margin of error

(liv) A good way to get a small standard error is to use a _____.

a) Repeated sampling
b) Small sample
c) Large sample
d) Large population

(lv) A post hoc test is ___.

a) A test to compare two or more means in one overall test
b) A test to determine regression to the mean
c) A follow-up test to the analysis of variance when there are three or more groups
d) A follow-up test to the independent t-test

(lvi) The cutoff the researcher uses to decide whether to reject the null hypothesis is called the:

a) Significance level
b) Alpha level

c) Probability value

d) Both Significance level and Alpha level are Correct

(lvii) This is the difference between a sample statistic and the corresponding population parameter.

a) Standard error

b) Sampling error

c) Difference error

d) None of these

(lviii) For a random sample of 9 women, the average resting pulse rate is x = 76 beats per minute, and the sample standard deviation is s = 5. The standard error of the sample mean is

a) 0.5570000000000001

b) 0.745

c) 1.667

d) 2.778

(lix) Which of the following is NOT true about the standard error of a statistic?

a) The standard error measures, roughly, the average difference between the statistic and the population parameter

b) The standard error is the estimated standard deviation of the sampling distribution for the statistic

c) The standard error can never be a negative number.

d) The standard error increases as the sample size(s) increases.

(lx) A result is called “statistically significant” whenever

a) The null hypothesis is true

b) The alternative hypothesis is true

c) The p-value is less or equal to the significance level

d) The p-value is larger than the significance level.