BIO401 - Biostatistics

SHORT QUESTIONS AND MCQs FOR FINAL TERM

BY

MUHAMMAD FARYAD

SHORT QUESTIONS AND MCQs FOR FINAL TERM BIO 401

1. ***What are outlier?***

Unusual data values as compared to the rest of the set. They may be distinguished by gaps in a histogram.

2. ***Name of probability sampling design?***

Simple random sampling Stratified sampling Systematic sampling Cluster (area) sampling Multistagesampling

3. ***Difference between qualitative quantative variables?***

Quantitative Variables It can be measured in the usual sense. For example: - the heights of adult males,

- the weights of preschool children, - the ages of patients seen in a - dental clinic.

Qualitative Variables *Many characteristics are not capable of being measured. Some of them can be ordered or ranked. For example: - classification of people into socioeconomic groups, -social classes basedon income, education, etc*

4. ***What are shapes of distribution?***

Symmetric *• Data is symmetric if the left half of its histogram is roughly a mirror image of its right half.*

Skewed *• Data is skewed if it is not symmetric and if it extends more to one side than the other.*
Uniform *• Data is uniform if it is equally distributed (on a histogram, all the bars are the same*

height orapproximately the same height).

5. What is data and what are difference source of data?-

The raw material of Statistics is data. We may define data as figures. Figures result from the process of counting or from taking a measurement. For example: - When a hospital administrator counts the numberof patients (counting). - When a nurse weighs a patient (measurement)

Sources:

Data Scales

Data are generally classified into four types:

1. Nominal – Categorical data

2. Ordinal – shows ranks, intervals may vary

3. Interval – intervals are constant, arbitrary 0

4. Ratio – Numeric data with a 'real' 0 value.

Ordinal, Interval and Ratio scales are all Numeric data.

What is SPSS?

Originally it is an acronym of Statistical Package for the Social Science but now it stands for Statistical Product and Service Solutions

One of the most popular statistical packages which can perform highly complex data manipulation and analysis with simple instructions

Box and Whisker Plot

• A useful visual device for communicating the information contained in a dataset.

• Sometimes simply called "Box Plot" • Makes use of the quartiles

Regression analysis

Regression analysis is a set of statistical methods used for the estimation of relationships between a dependent variable and one or more independent variables. It can be utilized to assess the strength of the relationship between variables and for modeling the future relationship between them.

Mutually Exclusive Events

Two or more events are said to be mutually exclusive if the events do not have any outcomes in common. They are events that can not occur together.

Dependent and Independent Events

Dependent Events: Two events A and B are dependent events when the occurrence of event A has an influence on the occurrence of an event B.

Independent Events: Two events A and B are said to be independent events when the occurrence of an event A has no effect on the occurrence of an event B.

Outliers

• Unusual data values as compared to the rest of the set. They may be distinguished

by gaps in a histogram.

Dot plot

• Consists of a graph in which each data value is plotted as a point along a scale of values

Time Series

• Data set is composed of quantitative entries taken at regular intervals over a period of time.

Pie Chart

• A circle is divided into sectors that represent categories

Pareto Chart

• A vertical bar graph in which the height of each bar represents frequency or relative frequency.

A boxplot is a visual representation of the fivenumber summary of the distribution of a numerical variable. This consists of:

– The minimum value of the distribution

– The first quartile

– The median

– The third quartile

– *The maximum value of the distribution*

The Mean and Median are Special cases of a family of parameters known **as location parameters**.

What is frequency distribution and frequency histogram?

Frequency Distribution • A table that organizes data values into classes or intervals along with number of values that fall in each class (frequency, f). 1. Ungrouped Frequency Distribution – for data sets with fewdifferent values. Each value is in its own class. 2. Grouped Frequency Distribution: for data sets with manydifferent values, which are grouped together in the classes.

Frequency Histogram • A bar graph that represents the frequency distribution. • The horizontal scale isquantitative and measures the data values. • The vertical scale measures the frequencies of the classes. • Consecutive bars must touch

Other location parameters which help us to determine the position of a particular observations in a data are called **Measures of Position**

These Measures of Position when help us to divide the sample data into n equal parts, or divide the probability distribution into contiguous interval with equal probabilities are called **QUINTILES.**

Define Dispersion?

Dispersion is defined as the extent to which the observations in the dataset are spread away from the central value.

Define Measures of Dispersion and its type?

Measures of Dispersion are the methods that convey information regarding the amount of variability present in the set of data.

Type

i-Measures which are expressed in terms of the same units as the original data are termed as **Absolute Measures of Dispersion.**

ii- Measures which are expressed in terms of the ratios and percentages these measures are independent of the units of measurement and termed as **Relative Measures of Dispersion.**

Range is defined as the difference between the maximum and the minimum value in the data.

Range = highest data value – lowest data value ; $Range = x_m - x_o$

Quartile Deviation (Q.D.)

• Quartile Deviation is the half distance between the Upper Quartile Q3(i.e. 75th percentile) and Lower Quartile Q1 (i.e. 25th Percentile).

• Essentially describes that how much the middle 50% of the data

varies.

• *Also known as semi – interqu*

Mean Absolute Deviation

Arithmetic Mean of the absolute deviation measured either from the mean or median.

$$\text{Mean Absolute Deviation} = \frac{\sum_{1}^{n} = 1\left[x_i - \bar{x} \right]}{n}$$

Variance

It is defined as the mean of the squared deviations of the observations from their mean.

$$S^2 = \frac{\sum_{1}^{n} = 1\left(x_i - \bar{x} \right)^2}{n}$$

Standard Deviation

The standard deviation (SD) is the square root of the variance.

$$S^2 = \sqrt{\frac{\sum_{1}^{n} = 1\left(x_i - \bar{x} \right)^2}{n}}$$

What Is Skewness?

Skewness refers to a distortion or asymmetry that deviates from the symmetrical bell curve, or normal distribution, in a set of data.

How do you interpret skewness and kurtosis?

For skewness, if the value is greater than + 1.0, the distribution **is right skewed**. If the value is less than -1.0, the distribution is left skewed. For kurtosis, if the value is greater than + 1.0, the distribution is leptokurtik. If the value is less than -1.0, the distribution is platykurtik.

WHAT IS A BOX AND WHISKER PLOT?

A box and whisker plot is defined as a graphical method of displaying variation in a set of data. In most cases, a histogram analysis provides a sufficient display, but a box and whisker plot can provide additional detail while allowing multiple sets of data to be displayed in the same graph.

WHY USE A BOX AND WHISKER PLOT?

Box and whisker plots are very effective and easy to read, as they can summarize data from multiple sources and display the results in a single graph. Box and whisker plots allow for comparison of data from different categories for easier, more effective decision-making.

WHEN TO USE A BOX AND WHISKER PLOT?

Use box and whisker plots when you have multiple data sets from independent sources that are related to each other in some way. Examples include:

- Test scores between schools or classrooms
- Data from before and after a process change
- Similar features on one part, such as camshaft lobes
- Data from duplicate machines manufacturing the same products

HOW TO MAKE A BOX AND WHISKER PLOT?

The procedure to develop a box and whisker plot comes from the five statistics below. You can also download the box and whisker plot template.

1. **Minimum value:** The smallest value in the data set
2. **Second quartile:** The value below which the lower 25% of the data are contained
3. **Median value:** The middle number in a range of numbers
4. **Third quartile:** The value above which the upper 25% of the data are contained
5. **Maximum value:** The largest value in the data set

Probability is **the measure of the likelihood that an event will occur in a Random Experiment**. Probability is quantified as a number between 0 and 1, where, loosely speaking, 0 indicates impossibility and 1 indicates certainty. The higher the probability of an event, the more likely it is that the event will occur.

The Subjective definition of probability utilizes intuition, experience, and collective wisdom to assign a degree of belief than an event will occur.

Classical Probability

DEFINITION

If an event can occur in N mutually exclusive and equally likely ways, and if m of these possess a trait E, the probability of the occurrence of E is equal to m/N.

Relative Frequency

DEFINITION

If some process is repeated a large numb resulting event with the characteristic *E* oc frequency of occurrence of *E*, *m*/*n*, will be probability of *E*.

Two or more events are said to be **equally Likely** if one event is as likely to occur as the other.

Two or more events are said to be **Collectively Exhaustive events** when union of the mutually exclusive events makes the entire sample space.

Dependent Events: Two events A and B are dependent events when the occurrence of event A has an influence on the occurrence of an event B.

Independent Events: Two events A and B are said to be independent events when the occurrence of an event A has no effect on the occurrence of an event B.

To every event A, there corresponds another event Ac, **called the complement** of A that consists of all other outcomes in the sample space not in event A.

Marginal Probability refers to the probability in which the numerator of the probability is a marginal total from a table and the denominator is the grand total from the table.

When probabilities are calculated with the subset of the total group as the denominator, the result is a **conditional probability.**

Two or more events are said to be **mutually exclusive** if the events do not have any outcomes in common. They are events that can not occur together.

A **diagnostic test** is used to determine the presence or absence of a disease when a subject shows signs or symptoms of the disease.
A **screening test** identifies asymptotic individuals who may have the disease.
Receiver Operating Characteristic (ROC) Curve, is a plot of the true positive rate against the false positive rate for the different possible cut points of the diagnostic test.
Morbidity has been defined as any departure , subjective, objective, from a state of physiological, psychological well – being.
Incidence rate or person-time rate is a measure of incidence that incorporates time directly into the denominator.
A **person-time rate** is generally calculated from a long-term cohort follow-up study
A **Mortality rate** is a measure of the frequency of occurrence of death in a defined population during a specified interval.
An experiment or a trial, whose outcome can be classified as either a success or a failure, is called a **Bernoulli Trial.**
The Discrete Distribution used for such instances is called **Poisson Probability Distribution**.
A **population** is the collection of all the elements of interest.
A **sample** is a subset of the population.

Correlation is a statistical technique used to determine the degree to which two variables are related.

Multiple regression analysis is a straightforward extension of simple regression analysis which allows more than one independent variable.

1) *Name two types of statistics.....*

i-Discriptive ii- inferential

2) *Name two types of Discriptive statistics.....*

Graphical measure

Numerical measure

3) *Name two types of Numerical measure.....*

Frequency distributionSummary

measure

4) *Name two types of summary measure.....*

Measure of central tendancyMeasure

of dispersion

5) *Name three types of Measure of tendency.....*

Mean

Median

Mode

The extent to which the observation in the data set are spreadaway from the central value is called....

Dispersion

1) *are the method that convey information regarding the amount of variability present in the set of data.*

Measure of dispersion

2) *Variation, Spread, and Scatter are the term used ..... with dispersion.*

Synonymusly

3) *PPO is the abrivation of.....*

Polyphenolic Oxidase

4) *YPC is the abrivation of.....*

Yellow Pigment Content

5) *How many types of measure of dispersion?*

Two

6) *Name two types of measure of dispersion.....*

Relative measure of dispersion Absolute

measure of dispersion

7) Measures which are expressed in term of same unit as originaldata are termed as.....

Absolute measure of dispersion

8) Measures which are expressed in term of ratios and %age aretermed as.....

Relative measure of dispersion

6) Which of the following is not the type of absolute measure ofdispersion.....

a) Range
b) Quartile deviation
c) Mean
d) Mean absolute deviation
e) Standard deviation and variance

7) The difference b/w minimum and maximum value in the datais called.....

Range

8) is the half difference b/w upper quartile and lower quartile?

Quartile deviation (Q.D)

9) Formula for measuring the lower quartile?

Q1 = 1(n+1) /4 value

10) Formula for measuring the upper quartile?

Q3 = 3(n+1) / 4 value

11) Formula for quartile deviation?

Q.D = Inter quartile range /2 = Q3 -Q1 /2

12) IQR is the abrivation of.....

Inter quartile range

13) of the absolute deviation measured either from mean or median.

Arithmetic mean

14) is define as the mean of the squared deviation of the observation from thier mean.

Variance

15) The square root of the variance is called.....

Standard daviation

16) The variance is independent of the .....

Origin

17) Comparing dispersion in two data sets on the basis ofstandard

deviation may lead to .....
fallacious results.

18) C.V is the abrivation of .....
Coefficient of variation

19) is define as the deperture of symmetry.

Skewness

20) What is the symbol of skewness?
S.K

21) What is the formula of skewness?

S.K = Mean - mode / S.D

22) The useful visual device for communicating the informationcontained in a data set is called.....
Boxplot

23) Box and whisker plot drawn for.....variable
Quantitative variables

24) Some activity with observable outcomes is called.....
Experiment

25) An experiments which produced different outcomes in multiplerepititions of the experiment, performed under similar condition iscalled.....
Randome experiment

26) Rolling of a dice is the example of.....experiment

Random

27) How many types of events?two

28) Name two types of events...

Simple and composite event

29) ..... event consist of only one outcome..

Simple

30) If event consist of more than one outcomes it is called.....
event.

composite

31) Name varoius other types of events.....

Mutually exclusive event Collectively

exhaustive eventEqually likely event

Indepedent and dependent event

32) *How many types of probability?*

Two

33) *Name two types of probabilty*

Objective
Subjective

34) *Name further two types of objective probability....*

Classical
relative frequency

35) *In .....year L.J Savage give the concept of probability.*

1950

36) *Two or more events are said to be..... event if the event do not have any outcomes in common?*

Mutually exclusive event

37) *Two or more events are said to be.....event if one event is as likely to occur as the other?*

Equally likely event

38) *When the occurance of event A has an influence on theoccurance of an event B then this event is called*

Dependent event

39) *When the occurance of event A has no effect on event B thenthis event is called.....*
independent even

40) *In .....year the axiomatic approach to probabilty was formalized by the Russian Mathmatician A.N Kolmogrove.1933*

41) *Three axiomatic properties of probability.....*

- ***Axiom of Non — Negativity***

- ***Axiom of Exhaustiveness***
- ***Axiom of Additive - ness***

42) *If the some of the mutually exclusive event is equal to 1 thenthis called.....*

Axiom of Exhautiveness

52. *Formula that use to find probability that this person will be 18year old or younger..... ?*
Ans: p (E)=number of early subject /total number of subject

53. *The probability we are seeking may be written in symbolicnation as……*
Ans: p (E intersection A)

54. *The symbol intersection show that……..*
Joint occurrence

55. *The formula of joint probability ……..*
Ans: n (E intersectin A)/n (s)

56. *Formula of conditional probability..... is*
P (A/B) =P (A intersection B)/P(B)

57. *Which condition show a conditional probability……..*
A vertical line .between A and B

*When the occurance of an event A has **no effect** on theoccurance of an event B is called*

Independent Event

58. *When the occurance of event A has an **influence** on theoccurance of an event B. that is called..... ?*
Dependent event

59. *The way to find the probability of two event occurring at thesame time is called*
Multipicative rule

60. *Formula of multiplicative rule..... is?*
P (A and E) = P (A intersection B)

61. *Multipicative rule is also called.....?*
AND rule

62. *For any **two independent event** A and E,the probability for the**joint occurance** of the both A and E is the product of their individual probabilities.....is a*
.Specific Multipicative rule

63. *Each parents has .....chance of making an (a) gamete*
½

64. *If the event do not have an outcomes in commen.... .They arethe event **that cannot occure together ..... is?***
Mutually exclusive

65. *The event that occure together is……Not-*

mutually event

66. *Following **TWO** rules use to calculate the probability anevent ?*

- *.Rule of complementary event*
- *Bayes rule*

67. *A..... is used to determine the presence or absence of a disease.*

Diagnostic test

68. *A..... identifies a symptotic individual who may have disease.*

Screening test

69. *Blood pressure for hypertension is a..... ?*

Screening test

70. *PSA test for prostate cancer.....is*

Screening test

71. *Fasting blood suger for diabtes is a……?*

Screening test

72. *Blood glucose level……..*

70-100mg/dL

74.*Cholesterole level..... is*

Less than 100mg/dL

75. *Systolic blood pressure is ..... ?*

120

76. *Diastolic blood pressure is…?*

80

77. *When test indicate a positive status……..*

Having a disease

78. *When test show a negative status it indicate ……Not having*

disease

79. *Sensitivity and specificity of a diagnosis test depend onthe ?*

Quality of test

80. *ROC curves is reported by the ..... ?*

Goldestien and Mushline

81. The lower the **T4 values**, show the…….
Patients are to be Hypothyroid

82. ROC analysis a part of the field called ..... ?
Signal detection theory

83. The portion that develops disease is a ……?

Incidence disease

84. If you report the incidence rate of say the heart diseasestudy as ……per..... person years.
2.5 , 1000

85. Prevalence is measure for following disease ..... ?
Chronic disease such as diabetes or Osteoarthritis

86 .....is measure of frequency of occurrence of death.

Mortality

87. IS the infant mortality rate is a raio?Yes

88. An experiment or a trial , whose outcome can be classifiedas either a success or a failure is called ..... ?
Bernoulli trial

89. Jacob Bernoulli is a.....?
Swiss Mathematician

90. Jacob Bernoulli was born……and death in.....year?
1705-1965

X=1

When the outcome is success

92. When the outcome is failure..... ?
X=0

93. A sequence of Bernouli trials forms a ----------?
Bernouli process

94. Each Bernouli trials results in one of the ----------
possible outcomes?

Two

95. The name of two possible outcomes are?

- Failure
- Success

96. The probability of success denoted by ---------- ?
P

97. The probability of success remains -------- from trial totrial?

Constant

98. The trials are ---------- ?

Independent

99. A ---------- results from Bernouli process?Bionomial probability

Distribution

100. A bionomial probability of distribution has ----------
number of trials?

Fixed

101. ---------- will denote the probabilities of Sucess andFailures respectively?

P and q

102. P is ---------- ?

*Probability of success***103.** *q is*

----------?

Probability of failure

104. ***n*** *is a fixed number of---------- ?*

Trials

105. ***x*** *is a---------- ?*

Specific number of success in n trials

106. *P(x) is equal to---------- ?*

Probability of getting exactly x success among the n trials

107. $p^x(1-p)^{n-x}$ ***= is a---------- ?***

Probability of x success among n

108. *How many methods for finding Probability?Three*

109. *In a --------, we finding the probabilities correspondingto the random variable x ?*

Bionomial Distribution

110. *Methods of finding probability?*

- *Using the bionomial probability formula*
- *Using the Table of probabilities*
- *Using technology*

111. *Suppose we have n = 5 and p= 0.60 The probabilitythat bionomial trials yeild 4 success will be given as :*

Ppppq=(0.60)4 x 0.40 = 0.05184

112. ***One*** *has to be very certain that x and p both refers tothe same cetagory being called a ---------- ?*

Success

113. *When sampling is conducted without replacement,then consider events to be ------- if n<0.05 n:*

Independent

114. *The -------- suggests that values are unusual if they areoutside of these limits.*

Range rule of Thumb

115. $\mu + 2\sigma$ *is a ----------value.*

Maximum value

116. $\mu - 2\sigma$ *is a ---------- value.*

Minimum Value

117. *For p = 0.5 and large or small n the bionomialdistribution will be:*

Symmetric

118. *For large p and small n the bionomial distribution will be --------?*

Left skewed

119. *For small p and small n the bionomial distribution willbe__?*

Right skewed

120. *For small p but large n the bionomial distributionapproaches ?*

Symmetry

121. *By using MS excel we will use a function*

BINOMDIST

122. *In interest, number of events occurring ?*

2

123. *Number of Deaths claims received per day by a -------- company?*

Insurance

124. *Number of Alpha particles emitted from a ---------- during a given period of time?*

Radioactive source

125. *The discrete distribution used for such instances; number of families with child, About deaths claims and alpha particles emitted from radioactive source is called ?*

Poisson probability distribution

126. *Who invented the poisson distribution?*

French mathematician Simeon Denis Poisson

127. *The probability that event occurs in a given unit oftime is the ----- for all units?*

Same

128. *The events that occur in one unit of time is ---------- of the number of events in other units.*

Independent

129. *The mean or expected rate Is----------?*

λ. (lamda)

130. λ. Is------- ?

Average number of events per interval

131. *The base of natural logarithms is ----------?*

Eulers number

132. $p(x) = \frac{\lambda^x}{x!}e^{-\lambda}, \qquad x = 0, 1, 2, \ldots$ *the following equation is called ?*

Poisson Random variable

133. *The poisson process generates a---------- ?*

Poisson distribution

134. *How many traits in poisson process ?*

Three

135. *In poisson process -------- are discrete??*

Outcomes

136. *The probability of two or more successes over a sufficiently small interval is essentially ---------- ?*

Zero

137. *In the study drug induced of anaphyl axis amongpatients taking -------- as a part of their anesthesia?*

Recuronium bromide

138. $P(X = 3) = \frac{e^{-12}12^3}{3!} = .00177$ ***it is the---------- of*** *patients receiving recuronium?*

Probability

139. *poisson distribution is often used as an ---------- for bionomial probabilities ?*

Approximation

140. *Poisson distribution is important because it is oftenused for discribing the behaviour of ---------- ?*

Rare events

141. *A --------- is a collection of all elements of interest?*

Population

142. *A -------- is a subset of population?*

Sample

143. *kinds of sample ??*

Representive or non-representive

144. *--------- samples are the samples selected using theprinciples of probability?*

Probabilistic

145. *The researcher can determine the probability of any given sampling error and make ---------- about population characteristics.*

Statistical interferences

146. *--------- sample may be resonably representative?*

Quota sample

147. *Sample for each stratum or subgroup of a populationis called.....*

Startified samples

148. *Combinations of random , systematic ,startified andcluster sampling is called.....*

Multistage sampling

149. *If probability involves at each stage then whichsample distribution can be obtained?*

Sample statistics

150. *The -------- CMAs of Regina and Saskatoon are strata?*

Two

151. *Lists of elements that sample selected from iscalled ?*

Frame

152. *Characteristics of a population is called ?*

Parameter

153. *Numerical characteristics of a population is called?*

Statics

154. *Probability of distribution of a static is called----------?*

Sample distribution

155. *In -------- each sample possible of size nhas the same probability of being selected.*

Simple random sample

156. *It may be difficult to obtain a---------- ?*

Frame

157. *The --------- is the frequency of occurence of a characteristic divided by total number of elements.*

Proportion

158. *---------- may also be termed as population values ?*

Parameters

159. *A specific value of point estimator is reffered as*

---------- *of a parameter.*

Point estimator

160. *Difference between the point estimate and the valueof parameter is called ?*

Sampling Error

161. *Culter poll has a sampling error of only ---------- % point for the liberals.*

0.2%

162. *A ----- is the probability diatribution for all possiblevalues of sample static.*

Sample distribution

163. *In sampling distribution each sample contain ------- elements.*

Different

164) *is a statistical technique used to determine the degree to which two variables are related.*

Correlation

165) *Name of two quantitative variables*

One variable is called independent (X) and

The second is called dependent (Y)

166) *measures the nature and strength between twovariables of the_____type*

Quantitative.

167) *The sign of ..... denotes the nature ofassociation*

r

168) *The value of .....denotes the strength of association.r*

169) *Statistic showing the degree of relation betweentwo variables is also called*

Pearson's correlation or product moment correlationcoefficient.

170) *If the sign is +ve this means the relation is .....*

direct.

171) *While if the sign is .....this means an inverse orindirect relationship.*

-ve

172) *Regression tells us how to draw the straight linedescribed by the .....*

correlation.

173) ..... *describes the strength of a linear relationshipbetween two variables.*

Correlation

174) If r = ... this means no association or correlationbetween the two variables.

Zero

175) If 0 < r < 0.25 =..... correlation.

weak

176) If 0.25 ≤ r < 0.75 =.....correlation.

intermediate

177) If 0.75 ≤ r < 1 =..... correlation.

strong

178) If r = l = ... correlation.

perfect

179) Spearman Rank Correlation Coefficient (rs)

It is a non-parametric measure of correlation.

180) The names of four windows.

Data editorOutput viewer Syntax editor Script window

181) SPSS stands for.....

Statistical Product and Service Solutions.

182) ..... is Spreadsheet-like system for defining, entering, editing, and displaying data. Extension ofthe saved file will be sav.

Data Editor

183) Displays output and errors. Extension of the savedfile will be spv.

Output Viewer

184) The.....shows that more people who receives wireless service tends to own PDA compared to peoplewho doesnt receive wireless service.

graph

185) .....Text editor for syntax composition.Extension of the saved file will be sps.

Syntax Editor

186) .....Provides the opportunity to write full-blown programs, in a BASIC-like language. Text editorfor syntax composition. Extension of the saved file will besbs.

Script Window

187) There are two sheets in the window:

1. Data view 2. Variable view

188) The basic analysis of SPSS that will beintroduced in this class.

— Frequencies

- *Descriptives*
- *Linear regression analysi*

1)Statistics is a field of study that is concerned with: collection, organization, summarization**, all of these**
2) The use of tools for the data that is derived from biological sciences and medicine Biological,chemical,**statistical**
3) Bio-statistical methods were used in the ancient civilizations like Ancient Greece, Ancient Rome, India and China **all of these**
4) One of the earliest known demographic / Bio-statistics study was conducted by John Graunt (1662) **(1662).** 1663 1664
5) John Graunt developed life tables to warn off the onset and spread of Bubonic plague in **London**.,America.japan
6) Famously known as "Father of Modern Statistical sciences". **Sir Ronald A. Fisher**.donald trump francis bacon
7) Applications of Biostatistics are Genomics, proteomics,genetics **all of these**
8) "To understand God's thoughts we must study statistics, for these are the measures of purpose**" HIS**,HIV HCV HBV
9)EXAMPLE OF CONTINUOUS VARIABLE IS HEIGHT, WEIGHT, CIRCUMFERANCE **all of these**
10) A Statistic: zt is a descriptive measure computed from the data of a POPULATION ,GROWTH.PROGRESS **NON OF THESE**
(sample)
11) A Parameter: It is a a descriptive measure computed from the data of

. **a population** ,SAMPLE, GROWTH
12) A measure of central tendency is a measure which indicates where the of the data is. **Middle**,UPPER LOWER
13) The three most commonly used measures of central tendency are: The Mean, the Median, and
MADE,MUDE**, the Mode.**
14) Here is a random sample of size 10 of ages, where = (42 + 28 + … + 37) / 10 = 36.2,36.3,36.4,36.5,**36.6**
15) (n+1)/2 th IS THE FORMULA OF
MEAN MOD OR **MEDIAN**
16) If all values are different there is no
MEAN ,MEDIAN **MODE**
17) Sometimes, there are more than one
1. MEAN ,MEDIAN **MODE**

18) A descriptive value for a population is called
SAMPLE POPULATION **PARAMETER**
19) Quantitative Variable = , , S S S MEAN N M n
20) The Mean and Median are Special cases of a family of parameters known as ……?
location parameters. ,location sample, lacation technique
21) Other location parameters which help us to determine the position of a particular observations in a data are called **Measures of position**.,sample,population
22) These Measures of Position when help us to divide the sample data into n equal parts, or divide the probability distribution into contiguous interval with equal probabilities are called

QUINTILES.quartiles,quality,quantity

23)cut points are a lso called……..?
Mode median mean **quantiles**
24)quantiles denoted by
Q Q Q k F S
25) is defined as the extent to which the observations in the dataset are spread away from the central value**. DISPERSION**,EXPANSION.DEPRESSION
26) Measures which are expressed in terms of the same units as the original data are termed as
ABSOLOUTE MEASURE OF DISPERSION.COMPLETE MEASURE OF DISPRSION, UNCOMPLETE MEASURES OF DISPERSION
27) the departure from Symmetry"IS
SKYNESS ,**SKEWNESS**
28)SKEWNESS IS DENOTED BY
SK.SL.SM
29)SKEWNESS IS GIVEN BY
Karl Pearson (1857 – 1936)
30) three axiomatic properties of Probability
Axiom of Non – Negativity Axiom of Exhaustiveness Axiom of Additive - ness
31) Box and Whisker plot is drawn for ….?
QUALITATIVE VARIABLE,**QUANTITATIVE VARIABLE** NON OF THESE