BRAINWARE UNIVERSITY

Term End Examination 2021 - 22

Programme – Bachelor of Technology in Computer Science & Engineering- Data Science

Course Name – Probability and Statistics

Course Code - BSCD201

(Semester II)

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) If the third moment about mean is zero then the distribution is:

a) Mesokurtic
b) Positively Skewed
c) Symmetrical
d) Negatively Skewed

(2) For Mesokurtic curve of the distribution, β_2 is

a) 0
b) <3
c) >3
d) =3

(3) The number of accidents in a city during 2010 is

a) Discrete variable
b) Continuous variable
c) Qualitative variable
d) Constant

(4) The variance of first n natural numbers is

a) n^2-1
b) $\frac{n^2-1}{10}$
c) $\frac{n^2}{12}$
d) $\frac{n^2-1}{12}$

(5) The correlation coefficient is used to determine:

a) A specific value of the y-variable given a specific value of the x-variable
b) A specific value of the x-variable given a specific value of the y-variable
c) The strength of the relationship between the x and y variables.
d) None of these

(6) The mean of a distribution is 14 and the standard deviation is 5. What is the value of the coefficient of variation?

a) 60.4%
b) 48.3%
c) 35.7%
d) 27.8%

(7) The middle value of an ordered array of numbers is the

a) Mode
b) Mean

c) Median d) Mid-point

(8) If the coefficient of determination is equal to 1, then the correlation coefficient

a) Must be equal to 1 b) Can be either -1 or +1

c) Can be any value between -1 and +1 d) Must be -1

(9) The most frequently occurring value of a data set is called the

a) Mean b) Median

c) Mode d) Variance

(10) The value of any regression coefficient is zero, then two variables are

a) Dependent b) Independent

c) Correlated d) None of these.

(11) When regression line passes through the origin then

a) Regression coefficient is zero b) Correlation is zero

c) Intercept is zero d) Association is zero

(12) The sum of the deviations about the mean is always:

a) Range b) Zero

c) Total Standard Deviation d) Positive

(13) **When b_{xy} is positive, then b_{yx} will be**

a) Positive b) Negative

c) Zero d) One

(14) The data which have already been collected bysomeone are called

a) Raw data b) Array data

c) Secondary data d) Fictitious data

(15) Type of cumulative frequency distribution in which class intervals are added in top to bottom ord er is classified as:

a) variation distribution b) less than type distribution

c) more than type distribution d) marginal distribution

(16) 'less than type distribution' and 'more than type distribution' are types of

a) class distribution b) cumulative class distribution

c) cumulative frequency distribution d) upper limit distribution

(17) Types of frequency distribution are

a) 3 b) 4

c) 5 d) 2

(18) Total of frequency up to an upper class limit or boundary is known as

a) average frequency b) cumulative frequency

c) frequency distribution d) frequency polygon

(19) A bar chart constructed in which area of each bar is proportional to number of items in each grou p is known as

a) pi chart b) histogram

c) frequency distribution table d) polygon

(20) The sum of frequencies for all classes will always equal

a) 1 b) the number of elements in data set

c) the number of classes d) a number between 0 to 1

(21) The sum of the relative frequencies for all classes will always equal

a) the sample size b) the number of classes

c) one d) larger than the sample size

(22)

The following data show the number of hours worked by 200 statisti

Number of Hours	Students
0 - 9	40
10 - 19	50
20 - 29	70
30 - 39	40

The class width for this distribution is

a) 9
b) 10
c) 11
d) Varies from class to class

23)

The following data show the number of hours worked by 200 statist

Number of Hours	Students
0 - 9	40
10 - 19	50
20 - 29	70
30 - 39	40

The number of students working 19 hours or less is

a) 40
b) 50
c) 90
d) cannot be determined without the original data

4)

The following data show the number of hours worked by 200 statis

Number of Hours	Students
0 - 9	40
10 - 19	50
20 - 29	70
30 - 39	40

The cumulative frequency for the class of 10 – 19

a) 90
b) 120
c) 110
d) 160

5) The grouped data is also called

a) Raw Data
b) Primary Data
c) Secondary data
d) Qualitative data

(26) Which of these represent qualitative data?

a) Height of a student
b) Liking or disliking of (500) persons of a product
c) The income of a government servant in a city
d) Yield from a wheat plot

(27) Which of the following is not based on all the observations?

a) Mean
b) Median
c) Mode
d) None of these

(28) Which of the following is a measure of central tendency?

a) Percentile
b) Quartile
c) Standard Deviation
d) Mode

(29) In a week the prices of a bag of rice were 350, 280, 340, 290, 320, 310, 300. The range is

a) 60
b) 70
c) 90
d) 100

(30) Relation between A.M, G.M and H.M

a) A.M>G.M>H.M
b) A.M=G.M=H.M
c) A.M<G.M<H.M
d) None of these

(31) In a Binomial (n,p) distribution, if its mean and variance are 2 and 16/9 respectively, then the values of n and p are:

a) 18,1/9
b) 16,1/9
c) 16,1/8
d) 18,1/8

(32) The distribution for which mean and variance are equal is

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

(33)

For the distribution

X	3	5	7	9
f_i	$\frac{1}{2}$	$\frac{1}{5}$	$\frac{1}{7}$	$\frac{11}{70}$

if Y=3X+1 then P(Y=22) is

a) 1/2
b) 1/5
c) 3/10
d) 1/7

(34) How many outcomes are possible if 3 new employees are to be selected from a group of 5 applicants?

a) 10
b) 12
c) 15
d) 30

(35) The variance of a random variable x is

a) $\{E(x)\}^2$
b) $E(x^2)$
c) $E(x^2)-\{E(x)\}^2$
d) None of these

(36) A bag of 45 marbles contains 20 red, 15 blue, and 10 yellow. What is the probability of randomly selecting 12 from the bag and having 3 red, 4 blue, and 5 yellow.

a) 0.0
b) 0.0587
c) 0.0923
d) 0.0136

(37) The mean of the binomial distribution is

a) less than the variance
b) equal to its variance
c) greater than its variance
d) greater than or equal to its variance

(38) A set of all possible outcomes of an experiment is called

a) Combination
b) Sample point
c) Sample space
d) Compound event

(39) A coin is tossed .The events {H}, {T} are

a) mutually exclusive
b) independent events
c) dependent events
d) both mutually exclusive and dependent event

(40) If $P(A)=\frac{1}{3}$, $P(B)=\frac{1}{4}$, $P(A\cup B)=\frac{1}{2}$, then $P(B/A)$ is

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

(41) If for a random variable X, $Var(X)=1$, then $Var(2X+3)$ is

a) 1
b) 2
c) 4
d) None of these

(42) The probability $P(a\le X\le b)$ (where F(x) is the distribution function of the random variable X) is defined by

a) $F(b)-F(a)$
b) $F(b)+F(a)$
c) $F(a)-F(b)$
d) $F(a)F(b)$

(43) The mean and standard deviation of a Binomial distribution are respectively 4 and $\sqrt{\frac{8}{3}}$. The values of n and p are (where n and p are the parameters of the probability distribution)

a) 11,3/4
b) 12,2/7
c) 12,1/3
d) 11,4/3

(44) Two even A and B are mutually exclusive if

a) $P(A\cup B)=P(A)P(B)$
b) $P(A\cap B)=P(A)P(B)$
c) $P(A\cap B)=0$
d) None of these

(45) If $P(A)=0.2, P(B)=0.4, P(A\cup B)=0.6$ then A and B are

a) mutually exclusive
b) independent
c) exhaustive
d) complement of each other

(46) The probability of any event A satisfies

a) $P(A)\ge 1$
b) $P(A)<0$
c) $0\le P(A)\le 1$
d) none of these.

(47) Three coins are tossed at random. Then the probability that there will be at least one head is

a) 3/8
b) 7/8
c) 2/9
d) 5/8

(48) One card is drawn from a pack of 52 cards. The probability which is either king or queen is

a) 1/13
b) 3/13
c) 2/13
d) 4/13

(49) An unbiased die is rolled. The probability that an odd point or six will appear on the top of the di e is

a) 1/2
b) 1/3
c) 2/3
d) None of these

(50) A bag contains five red and four black balls. Two balls are drawn at random. The probability that they match is

a) 2/9
b) 4/9
c) 5/9
d) 7/9

(51) The probability that A passes a test is $\frac{2}{3}$ and the probability that B passes a test is $\frac{3}{5}$. The probability that one of them passes is

a) 4/5
b) 7/15
c) 3/5
d) 5/9

(52) 50 tickets are serially numbered 1 to 50. One ticket is drawn from these at random. The probabili ty of it being a multiple of 3 or 4 is

a) 12/25
b) 6/25
c) 18/25
d) 7/25

(53) In rolling two fair die, the probability of getting equal numbers or numbers with an even product is

a) 5/6
b) 1/6
c) 3/4
d) 3/6

(54) One number is selected at random from 1 to 100. The probability that it is a perfect square is

a) 3/7
b) 5/7
c) 1
d) 1/7

(55) If $P(X=x)=\frac{x}{21}$ for $x=1,2,\ldots,6$ $=0$, elsewhere, then P(X=2 or 3) is

a) 2/21
b) 3/21
c) 4/21
d) 5/21

(56) A random variable X has the following p.d.f $f(x)=\frac{1}{4}$, $-2<x<2$ $=0$, elsewhere, then P(2X+

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

(57) The mean of Binomial distribution $B(n, p)$ (where n and p are the number of t probability of success) is

a) $\frac{n}{p}$
b) 0
c) np
d) 1

(58) The mean of a Poisson distribution with parameter μ is

a) μ
b) μ^2

c) $-\mu$

d) $-\mu^2$

(59) Var(2X+3)=?

a) 2Var(X)

b) 4Var(X)

c) 2Var(X)+3

d) None of these

(60) The standard deviation is always _____ than the mean deviation

a) Less

b) Greater

c) equal

d) none of these