

FINAL TERM PAST PAPER

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MTH302- Business Mathematics & Statistics

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Question No: 1 (Marks: 1) - Please choose one

The correlation coefficient between x and y shows

- ▶ Whether y depends on x
- ▶ whether x causes y
- ▶ whether there is any relation between x and y
- ▶ whether there is a linear relation between x and y

Question No: 2 (Marks: 1) - Please choose one

If the basic salary is Rs 6500 and the social charges are Rs 1820, what percentage of basic salary are the social charges?

- ▶ 27 %
- ▶ 28 %
- ▶ 29 %
- ▶ 30 %

Question No: 3 (Marks: 1) - Please choose one

Scatterplots, like histograms, are a good visual means to understanding patterns of

- ▶ onevariate numerical data
- ▶ bivariate numerical data
- ▶ Trivariate numerical data
- ▶ None of these

Question No: 4 (Marks: 1) - Please choose one

The formula for y-intercept 'b' in the regression line $Y=ax+b$ can be written

▶ $b = \frac{S_{xy}}{S_{xx}}$

▶ $b = \frac{S_{xx}}{S_{xy}}$

▶ $b = \frac{S_{yx}}{S_y}$

▶ $b = \frac{S_{xy}}{S_x}$

▶

Question No: 5 (Marks: 1) - Please choose one

There are two graphs G1 and G2. The graph G1 has $r = 0.9$ and the graph G2 has $r = 0.5$, then what result do you take out from it?

- ▶ G1 is more scattered than G2.
- ▶ G1 is less scattered than G2.
- ▶ G1 and G2 are equally scattered.
- ▶ No result can be drawn from the given data.

Question No: 6 (Marks: 1) - Please choose one

A, B and C play cricket. A's runs are to B's runs and B's runs are to C's as 3:2. They get altogether 342 runs. How many runs did A make?

- ▶ 162
- ▶ 108
- ▶ 72
- ▶ 112

Question No: 7 (Marks: 1) - Please choose one

Analysis of Variance (ANOVA) is a test for equality of:

- ▶ variances
- ▶ means
- ▶ proportions
- ▶ only two parameters

Question No: 8 (Marks: 1) - Please choose one

In a simple linear regression analysis, the correlation coefficient (r) and the slope (b_1) have the same sign.

- ▶ Always
- ▶ Sometimes
- ▶ Never
- ▶ Most of the times

Question No: 9 (Marks: 1) - Please choose one

The sample coefficient of correlation

- ▶ (i) is the square of the coefficient of correlation.
- ▶ (ii) cannot be negative.
- ▶ (iii) reports the percent of the variation in the dependent variable explained by the independent variable.
- ▶ (iv) All (i),(ii) and (iii) are correct.

Question No: 10 (Marks: 1) - Please choose one

The equation of the regression line is $2y + 5x - 3 = 0$. What will be the slope and intercept of the line?

- ▶ slope = -5, intercept = 3
- ▶ slope = 5, intercept = -3
- ▶ slope = -2.5, intercept = 1.5
- ▶ slope = 2.5, intercept = -1.5

Question No: 11 (Marks: 1) - Please choose one

Which is incorrect?

- ▶ The mode is a measurement that records value
- ▶ A bar graph is same as line graph
- ▶ A mean may cause distortions
- ▶ A circle graph is based on 360°

Question No: 12 (Marks: 1) - Please choose one

Which one of the following is **not** a component of the multiplicative time series model?

- ▶ trend
- ▶ irregular variation
- ▶ regression trend
- ▶ seasonality
- ▶ cyclicity

Question No: 13 (Marks: 1) - Please choose one

How many ways can 10 letters be posted in 5 post boxes, if each of the post boxes can take more than 10 letters?

- ▶ 5^{10}
- ▶ 10^5
- ▶ $10P5$
- ▶ $10C5$

Question No: 14 (Marks: 1) - Please choose one

$$\frac{6!}{0!(6-6)!}$$

Evaluate

- ▶ 0
- ▶ 10
- ▶ 120
- ▶ 720

Question No: 15 (Marks: 1) - Please choose one

----- measures the strength of the linear relationship between the dependent and the independent variable.

- ▶ Simple correlation coefficient
- ▶ Distance value
- ▶ Y intercept
- ▶ Normal plot

Question No: 16 (Marks: 1) - Please choose one

Probability of an event lies between

- ▶ $0 < P(A) < 1$
- ▶ $-1 \leq P(A) \leq 1$

- ▶ $P(A) \leq 1$
- ▶ $0 \leq P(A) \leq 1$

Question No: 17 (Marks: 1) - Please choose one

A box contains 3 red balls, 4 green balls, and 5 blue balls. One ball is taken from the drawer and then replaced. Another ball is taken from the drawer. What kind of probability is it?

- ▶ (a) Exclusive Probability
- ▶ (b) Independent Probability
- ▶ (c) Dependent Probability
- ▶ (d) Both (a) and (c)

Question No: 18 (Marks: 1) - Please choose one

Which of the following is NOT a possible probability?

- ▶ 25/100
- ▶ 1.25
- ▶ 1
- ▶ 0

Question No: 19 (Marks: 1) - Please choose one

The ----- is intended to measure the spread of the data about the mean.

- ▶ mean
- ▶ median
- ▶ mode
- ▶ standard deviation

Question No: 20 (Marks: 1) - Please choose one

$$\rho_{x,y} = \frac{\text{Cov}(X,Y)}{\sigma_x \sigma_y}$$

The equation for the correlation coefficient is _____ where

- ▶ $0 \leq \rho_{x,y} \leq 1$
- ▶ $-1 \leq \rho_{x,y} \leq 1$
- ▶ $1 \leq \rho_{x,y} \leq 0$
- ▶ $-1 \leq \rho_{x,y} \leq 0$

Question No: 21 (Marks: 1) - Please choose one

Syntax for the Poisson distribution is

- ▶ **POISSON(x, mean, cumulative)**
- ▶ POISSON(x, mode, cumulative)
- ▶ POISSON(x, median, cumulative)
- ▶ POISSON(x, y, mean, cumulative)

Question No: 22 (Marks: 1) - Please choose one

The negative of the negative of an odd number is

- ▶ negative
- ▶ **positive**
- ▶ the odd number
- ▶ does not exist

Question No: 23 (Marks: 1) - Please choose one

If for the next 8 years you save Rs. 20,000 per six months then how much will you have accumulated at the end of 8 years. Payments are to be made at the end of each annuity period, assume an interest of 8% compounded quarterly?

Which function can give you correct answer of above question?

- ▶ FV(0.08, 8, 20000, 0,0)
- ▶ FV(0.08, 8, 20000, 0, 1)
- ▶ **FV(0.08/2, 8*4, 20000, 0, 0)**
- ▶ PV(0.08/2, 8*4, 20000, 0, 0)

Question No: 24 (Marks: 1) - Please choose one

Break Even point is a point at which neither a profit nor ----- is made.

- ▶ Gain
- ▶ **Loss**
- ▶ Sale
- ▶ cost

Question No: 25 (Marks: 1) - Please choose one

This example returns the depreciation for an asset that costs Rs. 10,000, with a salvage value of \$6,000. The useful life of the asset is 4 years. The depreciation is being calculated for the first year, and there are 12 months in the first year.

- ▶ **=DB (10000, 6000, 4, 1, 12)**
- ▶ =DB (10000, 6000, 4, 12, 1)
- ▶ =DB (6000, 10000, 4, 12, 1)
- ▶ =DB (10000, 6000, 4, 1, 1)

Question No: 26 (Marks: 1) - Please choose one

$$\begin{pmatrix} 2 & 1 \\ 3 & -4 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

Product: =

▶ $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

▶ $\begin{pmatrix} 3 & 1 \\ 3 & -3 \end{pmatrix}$

▶ $\begin{pmatrix} 2 & 1 \\ 3 & -4 \end{pmatrix}$

▶ $\begin{pmatrix} 1 & 1 \\ 3 & -5 \end{pmatrix}$

Question No: 27 (Marks: 1) - Please choose one

Number of 5 permutations of 5 different objects taken 5 at a time is.....

▶ 5!

▶ 6!

▶ 0!

▶ 4!

Question No: 28 (Marks: 1) - Please choose one

New forecast =.....

▶ Old forecast + proportion of error ☒ ..

▶ Old forecast - proportion of error ☐

▶ Old forecast * proportion of error ☐

▶ Old forecast / proportion of error ☐

Question No: 29 (Marks: 1) - Please choose one

An equation for the intercept of the regression line is:

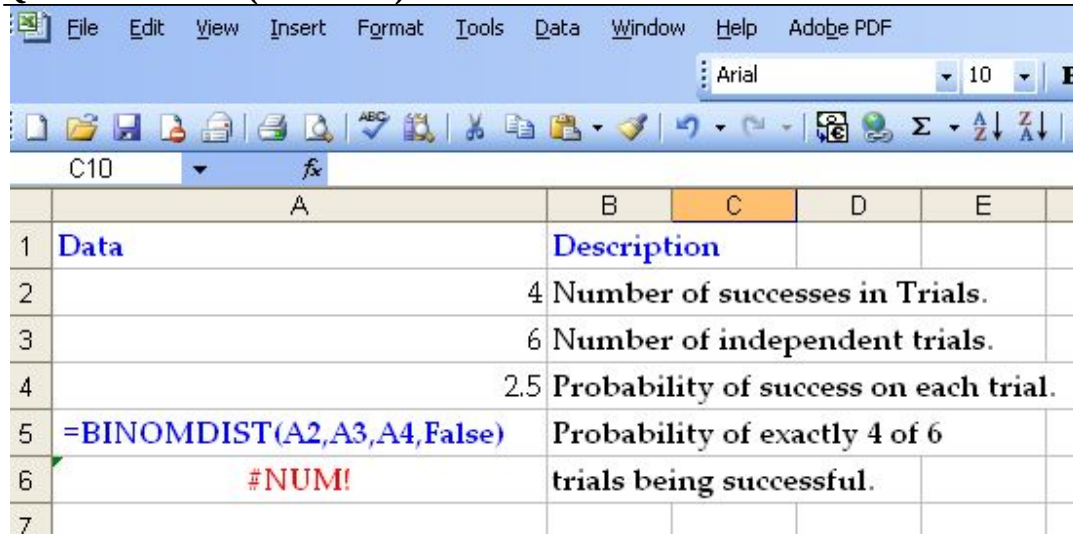
▶ $a = \bar{Y} - b\bar{X}$ (correct)

▶ $a = \bar{Y} + b\bar{X}$

▶ $a = \bar{Y} \times b\bar{X}$

▶ $a = \bar{Y} / b\bar{X}$

Question No: 30 (Marks: 1) - Please choose one



The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E
1	Data	Description			
2		4	Number of successes in Trials.		
3		6	Number of independent trials.		
4		2.5	Probability of success on each trial.		
5	=BINOMDIST(A2,A3,A4,False)	Probability of exactly 4 of 6			
6	#NUM!	trials being successful.			
7					

The result of BINOMDIST is #NUM. Why?

- ▶ One parameter is missing.
- ▶ Fourth parameter is FALSE
- ▶ The number of successes should be negative.
- ▶ Probability of success on each trial should be less than 1.

Question No: 31 (Marks: 1) - Please choose one

For two tail test, when $\alpha = 0.10$ the value of Z is

- ▶ ± 1.96
- ▶ ± 1.645
- ▶ ± 2.326
- ▶ ± 2.575

Question No: 32 (Marks: 1) - Please choose one

The graph of the normal distribution depends on -----

- ▶ Harmonic mean
- ▶ Standard Deviation only
- ▶ Harmonic Mean and Standard Deviation
- ▶ Mean and Standard Deviation

Question No: 33 (Marks: 1) - Please choose one

A regression equation was computed to be $Y = 35 + 6X$, the value of 35 indicates that

- ▶ An increase in one unit of X will result in an decrease of 35 in Y
- ▶ The coefficient of correlation is 35
- ▶ The coefficient of determination is 35
- ▶ The regression line crosses the Y-axis at 35

Question No: 34 (Marks: 1) - Please choose one

How many types of measure of dispersion

- ▶ 2
- ▶ 3
- ▶ 4
- ▶ 5

Question No: 35 (Marks: 1) - Please choose one

Probability of a person's death in a year

- ▶ 1/365
- ▶ 0
- ▶ 1
- ▶ Undetermined

Question No: 36 (Marks: 1) - Please choose one

A polynomial: $x^2 + (x+1)$ is a special case of

- ▶ bi-nomial
- ▶ tri-nomial
- ▶ None of these as expression is incorrectly expressed.
- ▶ mono-nomial

Question No: 37 (Marks: 1) - Please choose one

A basic published or advertised price is known as.....

- ▶ List price
- ▶ new price
- ▶ list price
- ▶ none of these

Question No: 38 (Marks: 1) - Please choose one

The conversion of Markup on cost price to Markup on Sale price is measured as

- ▶ %Markup on cost = % Markup on S / (1 - % Markup on C)
- ▶ %Markup on cost = % Markup on S / (1 - % Markup on S)
- ▶ %Markup on cost = % Markup on C / (1 - % Markup on C)
- ▶ None of these

Question No: 39 (Marks: 1) - Please choose one

The parameters of binomial distribution are

- ▶ n & p
- ▶ x & p
- ▶ n & x
- ▶ n & q

Question No: 40 (Marks: 1) - Please choose one

The formula for Poisson Distribution is -----

$$P(x = n) = \binom{n}{x} P^x (1 - P)^{n-x}$$



▶ $b^*(x; r, P) = {}_{x-1}C_{r-1} * P^r * (1 - P)^{x-r}$

▶ $P(X = x) = \frac{\mu^x e^{-\mu}}{x!}, \quad x = 0, 1, \dots$



▶ None of the above.

Question No: 41 (Marks: 2)

From the given data,

Week no.	Actual sales	Forecast
1	4500	-
2	4000	4500

Find the forecast for the 1st week.

Question No: 42 (Marks: 2)

What is the difference between these formulae?

a) $b(x; n, p) = \binom{n}{x} p^x (1 - p)^{n-x}$

$$B(x; n, p) = \sum_{y=0}^n \binom{n}{x} p^n (1 - p)^{n-x}$$

b)

Question No: 43 (Marks: 2)

What will be the coefficient of correlation

Question No: 44 (Marks: 3)

Find the mean and mode of the following data 2, 5, 2, 3, 8, 5, 7, 8.

Mean = $2+5+2+3+8+5+7+8 = 40 / 8 = 5$

Mode = 2, 5, 8

Question No: 45 (Marks: 3)

Two firms compete for contracts. A has probability of 3/4 of obtaining one contract. B has

probability of $1/4$. What is the probability that when they bid for two contracts, firm A will obtain either the first or second contract?

$$P(\text{B gets first}) \times P(\text{B gets second}) = 1/4 \times 1/4 = 1/16$$

$$P(\text{A gets one or both}) = 1 - 1/16 = 15/16.$$

Question No: 46 (Marks: 3)

In linear programming, what is meant by feasible region?

Question No: 47 (Marks: 5)

Find the variance and standard deviation of the following numbers: 1, 3, 5, 5, 6, 7, 9, 10 .

$$X \text{ mean} = 1+3+5+5+6+7+9+10 = 46 / 8 = 5.75$$

$$1 - 5.75 = -4.75 = 22.56$$

$$3 - 5.75 = -2.75 = 7.56$$

$$5 - 5.75 = -.75 = .56$$

$$5 - 5.75 = -.75 = .56$$

$$6 - 5.75 = .25 = .06$$

$$7 - 5.75 = 1.25 = 1.56$$

$$9 - 5.75 = 3.25$$

$$10 - 5.75 = 4.25$$

$$1628.29 / 7$$

Under root

$$SD = 14.25$$

$$\text{Variance} = 232.59$$

Question No: 48 (Marks: 5)

Use the given data to find the equation of the regression line. Round the final values to three significant digits, if necessary.

x	y
1	143
3	116
5	100
7	98
9	90

Question No: 49 (Marks: 5)

The ages of 5 students in a population are 12, 16, 10, 14 and 13. Considering all possible samples of size two which can be drawn with replacement from this population, find

☐ ① The mean age.

☐ ② The standard deviation of the students.

Question No: 50 (Marks: 10)

The number of phone calls at a call centre per minute is 7. What is the probability that on a given minute there will be more than 8 phone calls?

Mean = 7

$x = 8$

solution:

$$= (e^{-8})(8^7)/7!$$

$$= (0.0003)(2097152)/5040$$

$$= 629.146/5040$$

$$= 0.1248 = 12.5\%$$

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Question No: 1 (Marks: 1) - Please choose one

In regression analysis, when we plot the values of dependent and independent variables, the resulting set of points is called

- ▶ Scatter Diagram
- ▶ Venn diagram
- ▶ Histogram
- ▶ Pie Graph

Question No: 2 (Marks: 1) - Please choose one

Slope of the line passing through the points A (2, 3) and B (3, 4) is

- ▶ Zero
- ▶ One
- ▶ Two
- ▶ Three

Question No: 3 (Marks: 1) - Please choose one

A significant value of a correlation coefficient calculated from a sample of data (x, y) implies that

- ▶ x causes y
- ▶ y causes x
- ▶ x and y have a curved relationship
- ▶ x and y have a relationship with a strong linear component

Question No: 4 (Marks: 1) - Please choose one

The measure of how well the regression line fits the data is the:

- ▶ coefficient of determination
- ▶ slope of the regression line
- ▶ mean square error
- ▶ standard error of the regression coefficient

Question No: 5 (Marks: 1) - Please choose one

What is the slope of the line $y = -3.4x - 2.5$?

- ▶ -2.5
- ▶ 2.5
- ▶ -3.4
- ▶ 3.4

Question No: 6 (Marks: 1) - Please choose one

My estimated regression line is $Y = 17 + 4X$. The intercept is equal to:

- ▶ 17
- ▶ 4
- ▶ 21
- ▶ 13

Question No: 7 (Marks: 1) - Please choose one

How many arrangements can be made of the letter MOVING

- ▶ 900
- ▶ 120
- ▶ 600
- ▶ 720

Question No: 8 (Marks: 1) - Please choose one

Which of the following statements is true regarding the standard deviation?

- ▶ It cannot assume a negative value.
- ▶ If it is zero, then all the data values are the same
- ▶ It is in the same units as the mean.
- ▶ All the given choices are correct

Question No: 9 (Marks: 1) - Please choose one

There are 5 Rock songs, 6 Carnatic songs and 3 Indian pop songs. How many different albums can be formed using the above repertoire if the albums should contain at least 1 Rock song and 1 Carnatic song?

- ▶ 15624
- ▶ 16384
- ▶ 6144
- ▶ 240

Question No: 10 (Marks: 1) - Please choose one

In what range does correlation coefficient lie?

- ▶ 0 to +1
- ▶ -1 to 0
- ▶ -1 to +1
- ▶ Greater than 1

Question No: 11 (Marks: 1) - Please choose one

Which of the following describe the middle part of a group of numbers?

- ▶ Measures of central tendency
- ▶ measures of variability
- ▶ measures of shape
- ▶ measures of association

Question No: 12 (Marks: 1) - Please choose one

Evaluate $\frac{6!}{0!(6-6)!}$

- ▶ 0
- ▶ 10
- ▶ 120
- ▶ 720

Question No: 13 (Marks: 1) - Please choose one

Evaluate nC_n

- ▶ n
- ▶ one
- ▶ Zero
- ▶ nP_r

Question No: 14 (Marks: 1) - Please choose one

A large basket of fruit contains 3 oranges, 2 apples and 5 bananas. If a piece of fruit is chosen at random, what is the probability of getting an orange or a banana?

- ▶ 1/2
- ▶ 5/4
- ▶ 4/5
- ▶ 1/7

Question No: 15 (Marks: 1) - Please choose one

In the United States, 43% of people wear a seat belt while driving. If two people are chosen at random, what is the probability that both of them wear a seat belt?

- ▶ 18%
- ▶ 20%
- ▶ 25%
- ▶ None of these

Question No: 16 (Marks: 1) - Please choose one

The formula to calculate Mean squared deviation from the mean is

- ▶ $\frac{1}{n} \sum_{i=1}^n (x - \bar{x})^2$
- ▶ $\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})$
- ▶ $\sum_{i=1}^n (x_i - \bar{x})^2$
- ▶ $\frac{1}{n} \sum_{i=1}^n (x_i - \bar{x})^2$

Question No: 17 (Marks: 1) - Please choose one

Suppose we developed the following least squares regression equation: $Y = 3 + 2X$. Which of the following statements are correct?

- ▶ The dependent variable increases 2 for an increase of 1 in X
- ▶ The equation crosses the Y-axis at 3.5
- ▶ If $X = 5$, then $Y = 14$.
- ▶ Y is independent variable

Question No: 18 (Marks: 1) - Please choose one

The median in an odd number of values is the ----- value.

- ▶ first
- ▶ middle
- ▶ last

Question No: 19 (Marks: 1) - Please choose one

The ----- indicates where the center of data occurs without distorting a group of numbers with one or more extreme values.

- ▶ median
- ▶ mode
- ▶ mean
- ▶ quartile

Question No: 20 (Marks: 1) - Please choose one

The ----- is intended to measure the spread of the data about the mean.

- ▶ mean
- ▶ median
- ▶ mode
- ▶ standard deviation

Question No: 21 (Marks: 1) - Please choose one

In which of the following form, can the probability be written?

- ▶ fraction
- ▶ decimal
- ▶ percentage
- ▶ All of these.

Question No: 22 (Marks: 1) - Please choose one

Principal remains constant through out the agreement period in:

- ▶ Compound interest
- ▶ Annuity
- ▶ Simple interest
- ▶ Nominal interest

Question No: 23 (Marks: 1) - Please choose one

If A and B are any two matrices of order $m \times n$ and $p \times q$ respectively and $m > n$ and $p < q$. What should be the condition on m, n, p, q for the product AB to hold?

- ▶ $n > p$
- ▶ $m \leq q$
- ▶ $q = p$
- ▶ $n = p$

Question No: 24 (Marks: 1) - Please choose one

If the salary of an employee is 10,000 and his allowances are 5,000 then what is the taxable income of the employee?

- ▶ 5,000
- ▶ 10,000
- ▶ Zero
- ▶ 15,000

Question No: 25 (Marks: 1) - Please choose one

The mode of the words in the word CORRELATION is

- ▶ L
- ▶ R
- ▶ O
- ▶ Both R and O

Question No: 26 (Marks: 1) - Please choose one

The correct relation among the %markup on cost, cost price and selling price is

- ▶ Selling Price = Cost price + (Cost price $\times$ %Markup on sale)
- ▶ Selling Price = Cost price + (Cost price $\times$ %Markup on cost)
- ▶ Cost Price = selling price + (Cost price $\times$ %Markup on cost)
- ▶ None of these

Question No: 27 (Marks: 1) - Please choose one

To add numbers based on multiple conditions we use

- ▶ IF and SUM functions .
- ▶ DSUM function.
- ▶ AVERAGE function.
- ▶ All functions given in above choices .

Question No: 28 (Marks: 1) - Please choose one

If $A = \begin{bmatrix} a & b & c \end{bmatrix}$ is a matrix then in order to find AB, the number of columns B must have are

- ▶ 3
- ▶ 1
- ▶ 2
- ▶ any non zero number

Question No: 29 (Marks: 1) - Please choose one

Given FC = Rs.5000 ,CM= Rs. 30 ,VC= Rs. 150 , Capacity = 320units then BEP in units =

- ▶ 4500 units
- ▶ 167 units
- ▶ 33 units
- ▶ 16 units

Question No: 30 (Marks: 1) - Please choose one

Actual = ...

- ▶ Random - expected
- ▶ Random * expected
- ▶ Random + expected
- ▶ Random / expected

Question No: 31 (Marks: 1) - Please choose one

An equation for the intercept of the regression line is:

- ▶ $a = \bar{Y} - b\bar{X}$
- ▶ $a = \bar{Y} + b\bar{X}$
- ▶ $a = \bar{Y} \times b\bar{X}$
- ▶ $a = \bar{Y} / b\bar{X}$

Question No: 32 (Marks: 1) - Please choose one

The ratio of the standard deviation of a distribution to the mean of that distribution is referred to as

- ▶ a probability distribution.
- ▶ the expected return.
- ▶ the standard deviation.
- ▶ coefficient of variation.

Question No: 33 (Marks: 1) - Please choose one

Coefficient of variation shows dispersion of the

- ▶ standard deviation about mean.
- ▶ standard deviation about mode.
- ▶ variance about mean.
- ▶ variance about mode.

Question No: 34 (Marks: 1) - Please choose one

The Excel function =POISSON (2, 5, True) is used to calculate -----

- ▶ Normal Distribution
- ▶ Binomial Distribution
- ▶ Poisson Distribution
- ▶ Cumulative Poisson Distribution

Question No: 35 (Marks: 1) - Please choose one

The graph which uses circles to represent a set of data is called

- ▶ Travel graph
- ▶ Picture graph
- ▶ Sector graph
- ▶ Cumulative distribution

Question No: 36 (Marks: 1) - Please choose one

Is every Linear Programming has solution?

- ▶ true
- ▶ false
- ▶ may or may not
- ▶ none of these

Question No: 37 (Marks: 1) - Please choose one

Returns the cumulative interest paid on a loan between start period and end period is

.....

- ▶ CUMIPMT
- ▶ CUMPRINC
- ▶ FV
- ▶ PV

Question No: 38 (Marks: 1) - Please choose one

The price after deduction of all discounts or allowances is known as.....

- ▶ net price
- ▶ new price
- ▶ list price
- ▶ none of these

Question No: 39 (Marks: 1) - Please choose one

Net income can be calculated by using

- ▶ Net income = Number of units sale above break even point * Price per unit
- ▶ Net income = Total number of units sold * Price per unit
- ▶ Net income = Number of units sale above break even point * contribution margin per unit
- ▶ Net income = Total number of units sold * contribution margin per unit.

Question No: 40 (Marks: 1) - Please choose one

A single die is rolled.What is the probability of a 2 turning up.

- ▶ The answer is 1/6
- ▶ The answer is 2/6
- ▶ The answer is 0
- ▶ The answer is 1

Question No: 41 (Marks: 2)

If $Y = 5 + bX$, find the value of b when $Y = 9$ and $x = 2$.

Solution:

$$Y = 5 + bX$$

$$Y - 5 = bX$$

$$b = (Y - 5)/X$$

Putting the given value:

$$b = (9 - 5)/2$$

$$b = 4/2$$

$$b = 2 \quad \text{Ans.}$$

Question No: 42 (Marks: 2)

What is most common measure of central tendency and how it is calculated?

Answer:

Central Tendency refers to middle value and most common measure of central tendency is the "Mean".

Mean is calculated as follows:

$$\text{Mean} = (\text{The sum of all values}) / (\text{The Number of Values})$$

Question No: 43 (Marks: 2)

In which condition none of the hypothesis testing procedures can be safely used.

Answer:

In the null hypothesis we don't consider about proving null hypothesis and we must begin with assumption that there is no change at all.

Question No: 44 (Marks: 3)

A local trade union consists of plumbers and electricians. Classified according to rank:

	Apprentice	Journeyman	Master	
Plumbers	25	20	30	75
Electricians	15	40	20	75
	40	60	50	

A member of the union is selected at random. Given that the Person selected is a plumber, find the probability that he is a Journeyman

Question No: 45 (Marks: 3)

Calculate the mean deviation from mean = 30 of the following set of examination marks
28,30,32

$$\begin{aligned}\text{Mean deviation} &= \frac{\sum |x - \text{Mean}|}{n} \\ &= \frac{30}{3} \\ &= 10 \text{ marks}\end{aligned}$$

Question No: 46 (Marks: 3)

If a pollster might want to know whether or not, say, the sex, the ethnic background or salary range of a person is factor in his or her vote in election or for some type of legislation then justify which distribution is best fit for this scenario?(least two sentence description)

Question No: 47 (Marks: 5)

Find the mean, median, mode, and range for the following list of values:
1, 2, 4, 7

Answer:

$$\begin{aligned}\text{Mean} &= \frac{1+2+4+7}{4} \\ &= \frac{14}{4} \\ &= 3.5\end{aligned}$$

$$\begin{aligned}\text{Median} &= \frac{(n+1)}{2} \\ &= \frac{(4+1)}{2} \\ &= \frac{5}{2} \\ &= 2.5\text{th Value is the median}\end{aligned}$$

We take average of 2nd and 3rd Value.

$$\begin{aligned}&= \frac{(2+4)}{2} \\ &= \frac{6}{2} \\ \text{Median} &= 3\end{aligned}$$

$$\text{Mode} = \text{None}$$

$$\begin{aligned}\text{Range} &= \text{Maximum Value} - \text{Minimum Value} \\ &= 7 - 1 = 6\end{aligned}$$

Question No: 48 (Marks: 5)

A die is rolled and a coin is tossed, find the probability that the die shows an odd number and the coin shows a head

Answer:

$$\text{Die show odd number} = \frac{3}{6}$$

$$\text{Coin Shows a head} = \frac{1}{2}$$

$$\begin{aligned}\text{Probability of odd number and head of coin} &= \frac{3}{6} \times \frac{1}{2} \\ &= \frac{3}{12} \\ &= \frac{1}{4}\end{aligned}$$

Question No: 49 (Marks: 5)

A random sample of 36 drinks from a soft drink machine has an average content 7.6 ounces with an standard deviation of 0.48 ounces. Test the hypothesis $\mu \leq 7.5$ ounces against the alternative hypothesis $\mu > 7.5$ at the 0.05 level of significance.

Question No: 50 (Marks: 10)

The probability that a student is accepted to a prestigious college is 0.3. If 5 students from the same school apply, what is the probability that at most 2 are accepted.

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FINAL TERM PAST PAPER

By Mohammad Bilal Azeem

MTH302- Business Mathematics & Statistics

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Question No: 1 (Marks: 1) - Please choose one

Scatterplots are used only for

- ▶ quantitative variables
- ▶ **multivariables**
- ▶ surplus variable
- ▶ None of these

Question No: 2 (Marks: 1) - Please choose one

If the CORRELATION function returns the #DIV/0 ! error value, what is the possible reason of the error?

- ▶ Array1 and Array2 have different number of data points.
- ▶ **Either Array1 or array2 is empty.**
- ▶ Array or reference argument contains text, logical values or empty cells.
- ▶ The arguments are names, arrays, or references that contain numbers.

Question No: 3 (Marks: 1) - Please choose one

A college has 10 basketball players. A 5-member team and a captain will be selected out of these 10 players. How many different selections can be made?

- ▶ 1260
- ▶ **210**
- ▶ $10C6 * 6!$
- ▶ $10C5 * 6$

Question No: 4 (Marks: 1) - Please choose one

An insurance company wants to predict sales from the amount of money they spend on advertising. Which would be the independent variable?

- ▶ (i) sales
- ▶ **(ii) advertising**
- ▶ (iii) insufficient information to decide
- ▶ (iv) Both (i) and (ii) are correct.

Question No: 5 (Marks: 1) - Please choose one

Which of the following graphs is a visual presentation using horizontal or vertical bars to make comparisons or to show relationships on items of similar makeup?

- ▶ **bar graph**
- ▶ pie graph
- ▶ pictograph
- ▶ line graph

Question No: 6 (Marks: 1) - Please choose one

In a positively skewed distribution

- ▶ The mean, median, and mode are all equal.
- ▶ **The mean is larger than the median**
- ▶ The median is larger than the mean.
- ▶ The standard deviation must be larger than the mean or the median.

Question No: 7 (Marks: 1) - Please choose one

Which one of the following is not a component of the multiplicative time series model?

- ▶ trend
- ▶ irregular variation
- ▶ **regression trend**
- ▶ seasonality
- ▶ cyclicity

Question No: 8 (Marks: 1) - Please choose one

How many number of times will the digit '7' be written when listing the integers from 1 to 1000?

- ▶ 271
- ▶ **300**
- ▶ 252
- ▶ 304

Question No: 9 (Marks: 1) - Please choose one

How many arrangements can be made of the letter BUSINESS

- ▶ 6723
- ▶ 6725
- ▶ **6720**
- ▶ 6721

Question No: 10 (Marks: 1) - Please choose one

The moving averages represent -----

- ▶ **Time series variations**
- ▶ Co-efficient of variations
- ▶ Statistical Dispersion
- ▶ Absolute deviation

Question No: 11 (Marks: 1) - Please choose one

The class frequency is

- ▶ **The number of observations in each class**
- ▶ The difference between consecutive lower class limits
- ▶ Always contains at least 5 observations
- ▶ Usually a multiple of the lower limit of the first class

Question No: 12 (Marks: 1) - Please choose one

Twelve randomly-chosen students were asked how many times they had missed class during a certain semester, with this result: 2, 1, 5, 1, 1, 3, 4, 3, 1, 1, 5, 18. For this sample, the standard deviation is approximately

- ▶ 4.75
- ▶ 4.55
- ▶ 3.03
- ▶ 3.75

Question No: 13 (Marks: 1) - Please choose one

The experimental region is the range of the previously observed values of the dependent variable.

- ▶ False
- ▶ True

Question No: 14 (Marks: 1) - Please choose one

Which of the following is not a violation of the independence assumption?

- ▶ Negative autocorrelation
- ▶ A pattern of cyclical error terms over time
- ▶ Positive autocorrelation
- ▶ A pattern of alternating error terms overtime
- ▶ A random pattern of error terms over time

Question No: 15 (Marks: 1) - Please choose one

All of the following are assumptions of the error terms in the simple linear regression model except

- ▶ normality.
- ▶ error terms with a mean of zero.
- ▶ constant variance.
- ▶ variance of one.

Question No: 16 (Marks: 1) - Please choose one

If the regression equation is equal to $23.6 - 54.2X$, then 23.6 is the _____ while -54.2 is the _____ of the regression line.

- ▶ slope, intercept
- ▶ intercept, slope
- ▶ slope, regression coefficient
- ▶ radius, intercept

Question No: 17 (Marks: 1) - Please choose one

If mean scores of midterm and final term of a student is 78% and 80%. Also variances are 106 and 77 then

- ▶ **Midterm has greater variation in marks than Final term**
- ▶ Final term has greater variation in marks than Midterm
- ▶ No variation in midterm and final term marks
- ▶ None of the above.

Question No: 18 (Marks: 1) - Please choose one

If the CORRELATION function returns the #DIV/0 ! error value, what is the possible reason of the error?

- ▶ Array1 and Array2 have different number of data points.
- ▶ **Either Array1 or array2 is empty.**
- ▶ Array or reference argument contains text, logical values or empty cells.
- ▶ The arguments are names, arrays, or references that contain numbers.

Question No: 19 (Marks: 1) - Please choose one

A college has 10 basketball players. A 5-member team and a captain will be selected out of these 10 players. How many different selections can be made?

- ▶ 1260
- ▶ **210**
- ▶ $10C6 * 6!$
- ▶ $10C5 * 6$

Question No: 20 (Marks: 1) - Please choose one

After the merchant buys merchandise, it is sold at a higher price called the _____

- ▶ Sale price
- ▶ Revenue discount
- ▶ **Selling price**
- ▶ Cost price

Question No: 21 (Marks: 1) - Please choose one

A reduction of the amount due on an invoice is called a _____.

- ▶ Trade discount
- ▶ **Net discount**
- ▶ Cash discount
- ▶ Unearned discount

Question No: 22 (Marks: 1) - Please choose one

If the basic salary of an employee is 13000 what is the amount of allowances he is getting for his conveyance?

- ▶ **325**
- ▶ 260
- ▶ 765
- ▶ 500

Question No: 23 (Marks: 1) - Please choose one

The minimum value of the correlation coefficient r can be

- ▶ -infinity
- ▶ **0**
- ▶ -1
- ▶ 1

Question No: 24 (Marks: 1) - Please choose one

Total Provident Fund added to the employee's fund is ----- of the basic salary.

- ▶ 1 / 11 th
- ▶ **2 / 11 th**
- ▶ 9.09 %
- ▶ 9.99%

Question No: 25 (Marks: 1) - Please choose one

If I is an identity matrix then it must also be a

- ▶ rectangular matrix
- ▶ row matrix
- ▶ column matrix
- ▶ **scalar matrix**

Question No: 26 (Marks: 1) - Please choose one

If an asset is purchased at Rs 3000 on the date 6/29/2008 and the first depreciation period ends on 11/29/2008, where salvage value is 300 and period is taken as 1 on 20% interest rate where basis =1, then which of the following function Returns the depreciation for given accounting period

- ▶ =AMORLINC(3000, 6/29/2008, 11/29/2008, 300, 1*12, 20%, 1)
- ▶ =AMORLINC(3000, 6/29/2008, 11/29/2008, 300, 1, 20% / 12 , 1)
- ▶ **=AMORLINC(3000, 6/29/2008, 11/29/2008, 300, 1, 20%, 1)**
- ▶ =AMORLINC(3000, 6/29/2008, 11/29/2008, 300, 1*12 , 20%/12, 1)
- ▶ None of these

Question No: 27 (Marks: 1) - Please choose one

If A is the matrix of dimension $m \times n$ and I is the identity matrix of dimension $n \times n$. Then which of the following is true

- ▶ $AI = I$
- ▶ **$AI = A$**
- ▶ $A + I = A$
- ▶ $A + I = I$

Question No: 28 (Marks: 1) - Please choose one

If the cost & selling price of a pen are Rs.12 & Rs.15 respectively, profit percentage is:

- ▶ 33.33%
- ▶ **25%**
- ▶ 20%
- ▶ 10%

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Remember me in your prayers