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FINALTERM EXAMINATION
Spring 2010
MTH302- Business Mathematics & Statistics

Ref No: 1743064
Time: 90 min
Marks: 60

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

An arrangement of data by successive time periods is called a

► Exponential Smoothing

► **Time Series**

► Combination

► Permutation

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

What is the probability of choosing a vowel from the alphabet?

► 21/26

► **5/26**

► 1/21

► 2/21

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

What is the probability of scoring 11 when you roll two dice?

► **1/18**

► 2/18

► 1/36

► 3/18

Ref when you roll two dice then scoring 11 is (5,6) (6,5) = 2 =2/36=1/18

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

If sign of r is negative then it indicates

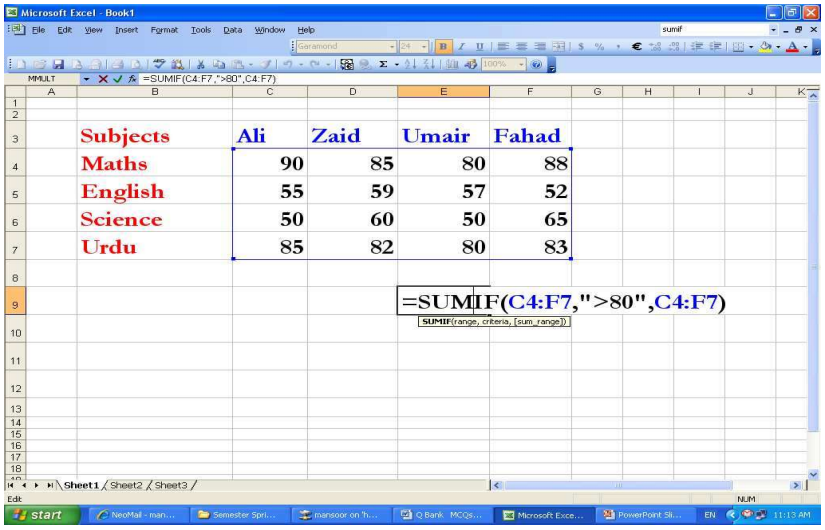
► Direct relationship between X & Y

► Indirect relationship between X & Y

► X & Y equal

► X & Y are square

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



The answer of the SUMIF function in the above diagram is:

- ► 763
- ► 663
- ► 613
- ► 513

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

Two dice are rolled and the numbers are added together. The probability of the total being 12 is $\frac{1}{36}$

- ► True
- ► False

Question No: 7 (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, which measure of central tendency is least representative of the "typical" student?

► Mean

► Median

► Mode

► Midrange

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

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

► False

► True

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

---------- should be of equal size.

► **Intervals**

► table

► frequency

► mean

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

Let's assume that you are receiving 1000 Rs. every year, and you invested each payment at 5%. The amount you would have at the end of five years period is referred as

► Final Value

► **Cumulative interest**

► Accumulated value

► Principal value

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

The point where a straight line cuts the X-axis is called

► slope

► starting point

► **y-intercept**

► x-intercept

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

Which ratio is equal to 15:20?

► **21 to 28**

► 5 to 10

► 18:25

► None of these

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

Reduction from original selling Price is called ……

► **Loss**

► List price

► Profit

► Markdown

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

This example returns the present value of an investment that pays Rs. 100 at the end of every year for 10 years. The money paid out will earn 5.25% annually.

► =PV (5.25%/1, 10*1, 100, 0)

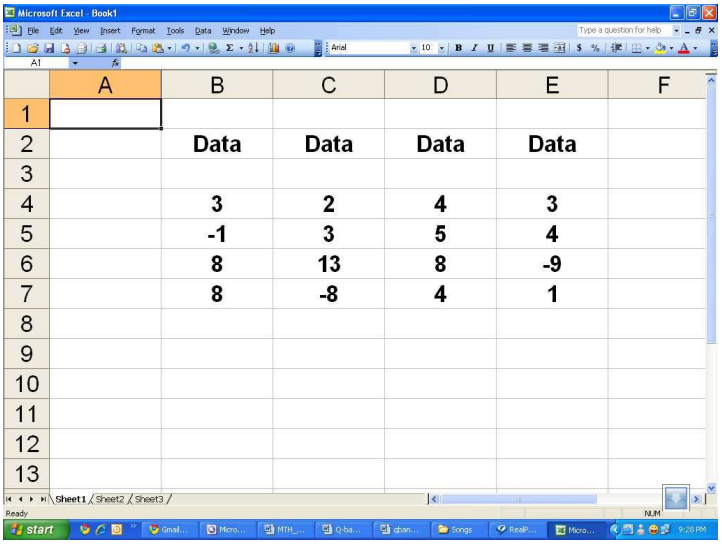
► =PV (5.25%/1, 10*1, 100, 1)

► =PV (5.25%/12, 10*1, 100, 0)

► =PV (5.25%/1, 10*12, 100, 1)

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

Which is the correct syntax for the determinant of a matrix given by the following array



► =DETERM(B4:E7)

► =MDTERM(B4:E7)

► **=MDETERM(B4:E7)**

► =MDETERM(B4;E7)

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

While using Frequency function ,one always selects

► **one cell more than data array.**

► one cell more than bins array .

► at most 20 cells.

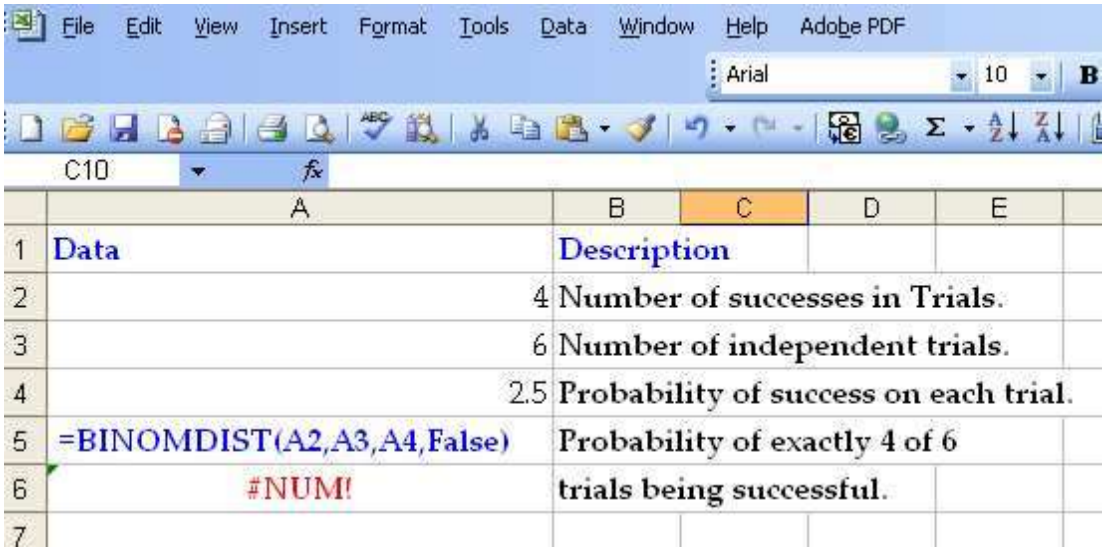
► random number of cells.

Question No: 17 (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: 18 (Marks: 1) - Please choose one



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: 19 (Marks: 1) - Please choose one

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

► ± 1.96

► $\pm$ **1.645 OR**

► ± 2.326

► ± 2.575

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

For the set of data 2, 1, 3, 1, 4, 5, 2, 6, 8 the median is given by

► 4

► 1

► 2

► **3**

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

The variable plotted on the horizontal or X-axis in a scatter diagram is called the

► **Independent variable**

► Dependent variable

► Correlation variable

► scatter variable

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

For two tail test, when $\alpha = 0.05$ the value of Z is

► ± 1.96

► $\pm$ 1.645

► ± 2.326

► None of these

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

No Linear Programming problem with an unbounded feasible region has a solution.

► true

► false

► may or may not

► none of these

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

The Linear Programming Model maximize or minimize the

► line

► both linear and quadratic functions

► None of these

► quadratic function

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

From the given scenario, Output of SUMIF(A3:A12,"Away" A3:A12) function will be

	A	B	C	D
1	Brilliant nineties			
2				
3	Home	3		
4	Home	4		
5	Away	2		
6	Away	5		
7	Home	4		
8	Home	7		
9	Home	0		
10	Away	3		
11	Home	6		
12	Away	4		
13				
14				

► 10

► 14

► 0

► #NAME?

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

which of the given function returns the normal distribution for the specified mean and standard deviation.

► NORMSDIST

► NORMDIST

► NORMSINV

► NORMINV

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

There are 12 "Yes or No" questions. How many ways can these be answered?

► 1024

► 2048

► **4096**

► 144

Ref http://www.wiziq.com/tutorial/110887-GMAT-Problem-Solving-Ability-Questions-amp-Ans8

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

There may be more than one optimal solution of linear programming problem, however the condition is that

► the objective function must be parallel to all the constraints

► the objective function must be paralle to one of the constraints.

► the objective function must not be paralle to any of the constraints.

► None of these

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

For CUMULATIVE Binomial distribution, which of the following formulae is correct?

► **=BINOMDIST(4, 7, 0.5, FALSE)**

► =BINOMDIST(4, 7, 0.5, TRUE)

► =BINOMDIST(4, 7, 2.5, FALSE)

► =BINOMDIST(4, 7, 2.5, TRUE)

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

A bar graph uses ……to show data.

► Points

► Lines

► Circle

► Bars

Question No: 31 (Marks: 2)

How many different 5-letter arrangements are there of the letters in the word DIGIT ?
ANS:
D=1
I=2
G=1
Formula= 5*4*3*2*1 /1*2*1*1
120/2= 60

Question No: 32 (Marks: 2)

Explain what is meant by confidence interval?

Question No: 33 (Marks: 2)

Average sale and standard deviation for a store are 17 and 5.5 respectively .Find coefficient of variation .

ANS:
cv = s.d/average *100
cv=5.5/17*100
cv=32.35%

Question No: 34 (Marks: 3)

Suppose a coin is flipped 3 times. What is the probability of getting two tails and one head?
ANS:
HT total probability is 50 50
now probability of getting 2 tails id 2/3
and probability of getting one head is 1/3
now total probability of getting 2 tails and 1 head is 3/6 = 1/2

Question No: 35 (Marks: 3)

From the data below:

Week no.	Actual sales	Forecast
2	4000	4500

Given that α = 0.4, find the forecast for the 3rd week.

Question No: 36 (Marks: 3)

A random sample of size 36 is taken from a normal population with a known variance $\sigma^2 = 25$. If the mean of the sample is 42.6. Find the left confidence limit for the population mean.

Question No: 37 (Marks: 5)

Two students were informed that they received standard scores of 0.8 and -0.4 respectively on a multiple choice examination in English. If their marks were 88 and 64 respectively. Find the mean and standard deviation of the examination marks.

Question No: 38 (Marks: 5)

Find the centered average in the data below:

Quarter	Actual	Moving Average	Centered Average
1	142		
2	54		
3	162	141	
4	206	138	
1	130	137	
2	50	140	
3	174	138	
4	198	137	
1	126	135	
2	42	132	
3	162	129	
4	186		

Question No: 39 (Marks: 5)

Find the probability that in a family of 4 children there will be at least 1 boy.

ANS:
(probability of at least boy) +(probability of girls) =1
p(boy) = 1- p(girls)
p(boy) = 1 - ¾
p(boy) = ¼

Solved by Chanda Rehman

FINALTERM EXAMINATION

Spring 2010

MTH302- Business Mathematics & Statistics (Session - 2)

Ref No:

Time: 90 min

Marks: 60

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

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

The equation for the correlation coefficient is where

- $0 \le \rho_{x,y} \le 1$
- $-1 \le \rho_{x,y} \le 1$
- $1 \le \rho_{x,y} \le 0$
- $-1 \le \rho_{x,y} \le 0$

http://mathbits.com/mathbits/tisection/statistics2/correlation.htm

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

A scatter diagram is a chart

- (i) In which the dependent variable is scaled along the vertical axis.
- (ii) In which the independent variable is scaled along the horizontal axis.
- (iii) That portrays the relationship between two variables.
- (iv) All (i),(ii) and (iii) are true 206.

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

If the estimating equation is Y = a – b X, which of the following is true

- The y intercept is b
- Slope of line is positive
- **There is inverse relationship**
- There is direct relationship

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

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

Evaluate

► 0
► 10
► 120
► 720

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

The Empirical Rule is based on the assumption of a

► (i) normal distribution
► (ii) binomial distribution
► (iii) poisson distribution
► (iv) both (ii)&(iii) above

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

In a school, 14% of students take drama and computer classes, and 67% take drama class. What is the probability that a student takes computer class given that the student takes drama class?

► 23%
► 25%
► **21% REPEATED**
► None of these

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

What is the probability of scoring 11 when you roll two dice?

► **1/18**
► 1/36
► 2/18
► none of these

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

A statistical ……is an assertion about the distribution of one or more random variables.

► Correlation
► Regression
► Hypothesis

► Time Series

Question No: 9 (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: 10 (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 C is approximately

► **4.75**

► 4.55
► 3.03
► 3.75

Question No: 11 (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** **REPEATED**
► slope, regression coefficient
► radius, intercept

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

The moving averages of the Prices 30,45,90,110 are

► 60, 85.45
► 45, 88.36
► **55, 81.67** **REPEATED**
► 65, 78.45

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

0.20% = ----------

► 0.2
► 0.02
► **0.002**
► 0.0002

REF 0.20/100

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

If a matrix has four column and 5 rows then its dimensions are

► 20
► 4x5
► 5x4
► 5x5

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

Transformation of $\frac{3}{16}$ as a percent is

► 5.33%
► **18.75%**
► 0.001875
► 0.1875

REF IN PERCENT

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

VDB returns the depreciation of an asset for

► Zero period
► One period
► Two period
► Any arbitrary period

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

All of the following are measures of central tendency except the

► range.
► mode.
► mean.
► median.

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

Binomial expansion for $(3x-2y)^0$ is equal to

► 1
► $(3x-2y)$
► $(0\times 3x-2y)$
► $(3x-0\times 2y)$

Question No: 19 (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 303

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

For the set of data 1, 2, 3, 4, 5, 2, 1, 6, 8, the mode is given by

- ► 1
- ► 2
- ► 1 and 2
- ► 3

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

Chi-distribution is used to decide whether or not certain variables are

- ► Dependent
- ► **Independent**
- ► Discrete
- ► Continuous

http://www.aiaccess.net/English/Glossaries/GlosMod/e_gm_chi2.htm

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

Badri has 9 pairs of dark Blue socks and 9 pairs of Black socks. He keeps them all in a same bag. If he picks out three socks at random what is the probability he will get a matching pair?

- ► **(2*9C2 * 9C1) / 18C3 SOLVE THIS YOU GET 0.794**
- ► (9C2 * 9C1) / 18C3
- ► 1
- ► 0

SOLUTION: PAIR MEAN 2 FIRST HE PICK UP A PAIR FROM BLUE AND ONE FROM BLACK (9C2*9C1/18C3) OR PAIR FROM BLACK AND ONE FROM BLUE (9C1*9C2/18C3) THEN
9C2*9C1/18C3 + 9C1*9C2/18C3
36 * 9 / 816 + 36 * 9 /816
324/816 + 324/816

0.397 + 0.397 = 0.794

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

Is the percent. symbol: (%) used as Excel arithmetic operator?.

► True
► False

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

which of the given function returns the normal distribution for the specified mean and standard deviation.

► NORMSDIST
► NORMDIST 315
► NORMSINV
► NORMINV

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

A hypothesis specifying the population distribution is called

► composite hypothesis
► test statistic
► alternative hypothesis
► simple hypothesis

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

What will be the simple interest earned on an amount of Rs. 16,800 in 9 months at the rate of $6\frac{1}{4}$ % p.a?

► Rs. 787.50
► Rs. 812.50
► Rs 860
► Rs. 887.50

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

A company distributes_____of profit it earns as dividend

► All
► Half
► 10%
► Some part (depending on the company policy)

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

A standard normal distribution is a distribution with

► mean = 0 and standard deviation =1
► mean = 0 and standard deviation =0
► mean =1 and standard deviation =0

► mean = 1 and standard deviation =1

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

A rule or formula that provides a basis for testing a null hypothesis is called

► population statistic
► confidence coefficient
► size of the test
► test statistic

http://www.referenceforbusiness.com/management/Gr-Int/Hypothesis-Testing.html

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

If maximum number of data points are close to the mean, then the standard deviation is ----------

► 0
► Small
► Large
► Middle value

Question No: 31 (Marks: 2)

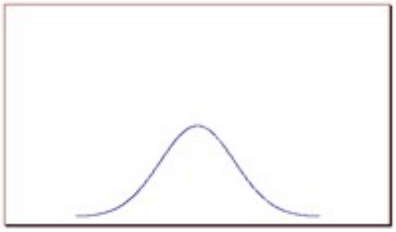
At Pizza Parlor, in addition to cheese there are 8 different toppings. If you can order any number of toppings, then how many different toppings are possible?

Question No: 32 (Marks: 2)

Calculate the coefficient of variation where mean= 30 and S.D = 13.04.

Question No: 33 (Marks: 2)

Look at the diagram of the Normal Distribution.



Can you guess by the diagram whether mean is greater than Standard Deviation or not?

Question No: 34 (Marks: 3)

Show that X and Y are uncorrelated by using the following table

X	2	4
Y	3	3

Question No: 35 (Marks: 3)

The Poisson distribution is the most commonly used to model the number of random occurrences of some phenomenon in a specified unit of space or time. http://vustudents.ning.com

Give two examples of Poisson distribution from the daily life.

Question No: 36 (Marks: 3)

Define normal distribution?

Question No: 37 (Marks: 5)

There are 10 red marbles, 30 white marbles and 20 black marbles in a bag. What is the probability that you take out a marble and it will be red or white?

SOLUTION: total marbles=10+30+20=60
Probability of red = 10/60
Probability of white = 30/60 Or mean +
P(red or white) =10/60+30/60 = 40/60 = **2/3**

Question No: 38 (Marks: 5)

If X is a normal random variable with mean (m) 100 and standard deviation (σ) is 10, find P(X<110).
(Use the following chart:

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936

Question No: 39 (Marks: 5)

Find the variance and standard deviation of the following data

44, 50, 38, 96, 42, 47, 40, 39, 46, 50

Solved by Chanda Rehman

FINALTERM EXAMINATION

Spring 2010

MTH302- Business Mathematics & Statistics

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

As the regression line equation is *y = ax + b, where a is*

- ► The x-intercept
- ► The y-intercept
- ► **The slope**
- ► None of these

http://www.andrews.edu/~calkins/math/edrm611/edrm06.htm

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

The correlation used when there is a degree of association

- ► Between two variables
- ► Among three variables
- ► Among four variables
- ► None of these

http://www.answers.com/topic/correlation

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

45% of what is 9?

- ► **20**
- ► 40
- ► 30
- ► 10

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

When there is no linear correlation between two variables, what will the value of r be?

- ► -1
- ► +1
- ► 0
- ► a very small negative number

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

Evaluate $^{5}\rho_{3}$

- ► 60
- ► 30
- ► 40
- ► 50

Question No: 6 (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: 7 (Marks: 1) - Please choose one

: In which Trust Fund, the company does not deduct, but only contribute 1/11th of Basic Salary of the employee per month?

► Provident Fund
► Gratuity Fund
► Charity Fund
► None of the above

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

The midrange is **not** greatly affected by outliers

► False
► True

http://www.ehow.com/about_6138177_outlier-number_.html

Question No: 9 (Marks: 1) http://vustudents.ning.com - Please choose one

In a symmetric distribution

► The mean, median, and mode are equal
► The mean is the largest measure of location
► The median is the largest measure of location
► The standard deviation is the largest value

http://www.answers.com/topic/symmetrical-distribution

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

Which of the following is NOT a possible probability?

► 25/100

► 1.25
► 1
► 0

Probability is 0<=P<=1

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

The ---------- is an arithmetic average.

► mode
► mean
► median
► quartile

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

The Standard Deviation of 60,60,80,70 is

► 9.29
► **8.29**
► 7.29
► 6.29

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

If **Sale Price** = Rs. 3810 and **Original Price** = Rs. 7270 then the **Markdown Rate** is equal to

► 47.59 %
► 45.57 %
► 43.53 %
► 48.9 %

Question No: 14 (Marks: 1) http://vustudents.ning.com - Please choose one

Umair's greeting card business sells a card for Rs. 30. To make his desired profit, Umair needs a 35% Markup on Selling Price. What does a greeting card Cost Tanveer?

► Rs 9.5

► Rs 19.5
► Rs 29.5
► Rs 22.5

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

Given Net price of shirt = $20 , Discount = 10% ,List price will

► $22
► $24
► $26
► $30

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

If an operation A can be performed in m ways and B in n ways, then the two operations can be performed together in ------ways.

► m+n
► m-n
► m*n
► n/m

Question No: 17 (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.

C.V = s.d/mean*100

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

C_{100}^{100} = ……..

► 100
► 10000
► 0
► 1

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

If $\mu_0 = 130$, $\bar{x} = 150$, $\sigma = 5$, and n = 10 , what test statistic is appropriate?

- **► Z**
- ► t
- ► F
- ► χ^2

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

Formula = $e^{-\lambda} \lambda^x / x!$ is used to calculate ----------

- ► Normal Distribution
- ► Binomial Distribution
- **► Poisson Distribution**
- ► Cumulative Poisson Distribution

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

Which of the following is a continuous distribution?

- ► Binomial Distribution
- ► Poisson Distribution
- ► Normal Distribution
- ► Hypergeometric Distribution

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

Chi-distribution is used to decide whether or not certain variables are

- ► Dependent
- **► Independent**
- ► Discrete
- ► Continuous

Ref:
http://www.aiaccess.net/English/Glossaries/GlosMod/e_gm_chi2.htm

Question No: 23 (Marks: 1) http://vustudents.ning.com- Please choose one

No Linear Programming problem with an unbounded feasible region has a solution.

► true
► false
► may or may not
► none of these

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

Probability of a person's death in a year
► 1/365
► 0
► 1
► Undetermined

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

Which of the following statements is true if a particular event has a probability of 10%.
► **There is a one-in-ten chance it will happen.**
There is a one-in-ten chance it will happen.
► It is not likely to happen.
► There is no one-in-ten chance it will happen.
► None of these.

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

Which method of trend analysis is useful for data not having a pronounced trend or seasonality?
► multiplicative model
► decomposition model
► ratio-to-moving average method
► exponential smoothing method

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

When a scalar k is multiplied with a matrix then

- ► It is multiplied with the row of the matrix
- ► It is multiplied with the column of the matrix
- ► It is multiplied with all elements of the matrix
- ► None of these

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

If a speed of a car is changed from 25km/h to 40km/h then the percentage change in its speed is?

- ► 15%
- ► 50%
- ► 40%
- ► 60%

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

Because only a subset of the entire population is sampled and used to estimate a finding for the entire population, we use

- ► alternative hypothesis
- ► standard error of percentage
- ► cofidence interval
- ► level of significance

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

Variance is calculated by taking square root of----------

- ► Mean
- ► Median
- ► Mode
- ► **None**

Ref: Variance is calculated by taking square root of standard deviation

Question No: 31 (Marks: 2)

Suppose in a university there are 5 male and 3 female instructors for the subject of statistics then by using the sum rule of counting, in how many ways a student can choose the instructor of this subject?

Question No: 32 (Marks: 2)

Define Seasonal Variation.

Question No: 33 (Marks: 2)

Define Type-I error.

Question No: 34 (Marks: 3)

If you toss a die and observe the number of dots that appears on top face then write the event that an even number AND a number exceeding 3 occurs.

Question No: 35 (Marks: 3)

Determine two variable X and Y are correlated or uncorrelated by using the following table

X		
	0	4
Y	2	2

Question No: 36 (Marks: 3)

Find proportion of bags which have weight in excess of 505 g.

Mean = 500.

StDev = 2.5 g

(For z=2.00 probability is 0.4772)

Question No: 37 (Marks: 5)

Suppose the following table gives the percentage of the number of persons per household in the country for the given year

No. of Persons	1	2	3	4	5 or more
% of households	20	30	18	15	17

Suppose a survey of 1000 households in a city for the year yielded the following data

No. of Persons	1	2	3	4	5 or more
No. of households	270	210	200	100	220

http://vustudents.ning.com

Let Ho be the (Null) hypothesis that the distribution of people in households in the city is the same as the national distribution. Then find the χ^2 value

Question No: 38 (Marks: 5)

If the variance of the Poisson distribution is 2, find the probabilities for X=0 and X=1

Question No: 39 (Marks: 5)

Find the standard deviation

Solved by Chanda Rehman

FINALTERM EXAMINATION

Spring 2010

MTH302- Business Mathematics & Statistics

Time: 90 min

Marks: 60

Question No: 1 (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

Solution: slope = (y_2-y_1)/(x_2-x_1) A(x_1,x_2) B(y_1,y_2)
slope = (4-3)/(3-2)=1

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

Frequency of occurrence is used in finding the

► weighted mean

► median

► mode

► variance

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

How many words of 4 consonants and 3 vowels can be made from 12 consonants and 4 vowels, if all the letters are different?

► 16C7 * 7!

► **12C4 * 4C3 * 7!**

► 12C3 * 4C4

► 12C4 * 4C3

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

Bar charts are visual presentation of

► **data**

► table

► figure

► interval

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

For what purpose is the method of least squares used on time-series data?

► It is used for eliminating irregular movements

► **It is used for obtaining the trend equation.**221

► It is used for deseasonalizing the data.

► It is used for exponentially smoothing a series.

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: 7 (Marks: 1) - Please choose one

The moving averages represent ----------

► **Time series variations**

► Co-efficient of variations

► Statistical Dispersion

► Absolute deviation

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

A statistical ……is an assertion about the distribution of one or more random variables.

► Correlation

► Regression

► **Hypothesis**

► Time Series

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

---------- should be of equal size.

► **Intervals**

► table

► frequency

► mean

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

How many arrangements can be made of the letter PAKISTANI

► 100108

► 10080

► 10962

► **90720**

Solution total words = 9 A=2, I=2 9! /2!2! = 9*8*7*6*5*4*3*2!/2!2! 9*8*7*6*5*4*3/2! = 181,440 / 2=90,720

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

Sum of annuity is an accumulated amount of:

► Original payments and discount

► Original payments and interest

► Interest and the payment yet not paid

► Compound interest

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

In annuity interest is charged by the:

► Simple interest method

► Compound interest method

► Both simple and compound interest method

► Accumulated method

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

The point where a straight line cuts the X-axis is called

► slope

► starting point

► **y-intercept**

► **x-intercept (doubt)**

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

A = [1], then which statement is wrong about A?

► A is a column matrix.

► A is a row matrix.

► **A is an identity matrix.**

► A is not a square matrix.

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

Solution of the linear equations:
$x + y = 2$
$3x + 3y = 5$

is

- (x,y) = (0,0)
- (x,y) = (0,-3)
- (x,y) = (-3,0)
- **Can't be found**

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

Given list price of shirt = $20 , Discount = 10% ,Net price will be

- $ 16
- **$18**
- $20
- $22

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

Cost analysis provides the following information:
Fixed Costs (FC) **per period** = Rs. 20000
Variable Costs (VC) = Rs. 30 **per unit.**
Selling price per unit = S = 50 Rs . Contribution Margin will be

- **20 Rs**
- 80 Rs

► 16 Rs

► 26 Rs

cm=s-vc
cm=50-30
c=20

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

Ogives at different values determine

► limits .

► frequencies.

► cumulative frequencies.

► both (2) & (3)

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

If the mean, median and mode for a given population all equal 25, then we know that its distribution is

► normal.

► skewed to the right.

► symmetric.

► skewed to the left.

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

Actual = …

► **Random – expected** 225

► Random * expected

► Random + expected

► Random / expected

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

In the formula, , Poisson = $e^{-\lambda} \lambda^x / x!$, e is a constant whose value is ……

► **2.71828**

► 3.14157

► 22 / 7

► 9.325

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

The value of $\chi 2$ can never be----------

► Zero

► **Negative**

► Greater than 1

► Less than 1

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

A Linear Programming model seeks to ……a linear function, subject to a set of linear constraints.

► maximize

► minimize

► **maximize or minimize**

► utilize

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

For two tail test, when $\alpha = 0.05$ the value of Z is

► $\pm$ 1.96

► $\pm$ 1.645

► $\pm$ 2.326

► None of these

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

Time series data is analyzed by the moving average.

► True

► False

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

Result of this formula
=**BINOMDIST**(6,10,-0.5,FALSE) = #NUM!
One possible reason for this errors is

► One parameter is missing.

► "probability_ successes" < 0

► "trials" is not numeric.

► Option 1 & 2 are correct.

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

which of the given function returns the normal distribution for the specified mean and standard deviation.

- ► NORMSDIST
- ► **NORMDIST**
- ► NORMSINV
- ► NORMINV

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

The formula for Poisson Distribution is **-------c------**

- ► $P(x=n)=\binom{n}{x}P^{x}(1-P)^{n-x}$
- ► $b^{*}(x;\ r,\ P) = {}_{x-1}C_{r-1} * P^{r} * (1 - P)^{x - r}$
- ► $P(X=x)=\frac{\mu^{x}e^{-\mu}}{x!},\quad x=0,1,\ldots$ **correct**
- ► None of the above.

Poisson dist = $P(X=x)=\frac{\mu^x e^{-\mu}}{x!}, \quad x=0,1,...$ **right option**

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

If A and B are any two matrices of order m x n and p x 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<=q

► q=p

► n=p

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

The confidence interval is a range of values

► within which both the "true" and "false" value of the rate is expected to occur at same time

► within which the “false” value of the rate is expected to occur

► within which the “true” value of the rate is expected to occur

► None of these

Question No: 31 (Marks: 2)

Calculate the coefficient of variation where mean= 30 and S.D = 13.04.
Coefficient of variation=standard deviation/mean * 100
= 13.04/30*100
=43.46

Question No: 32 (Marks: 2)

If a single 6-sided die is rolled, what is the probability of a number that is not 8?

Since in single 6 sided 8 cannot come. P=6/6 =1

Question No: 33 (Marks: 2)

What will be the standard deviation of a sample of size 25 if its population variance is 2 .

$$\sigma^2 = \frac{\sum (X - \overline{X})^2}{N}$$

$$S.D = \sqrt{\sigma^2(n)}$$

$$S.D = \sqrt{(2)*25}$$

$$S.D = 7.071$$

Question No: 34 (Marks: 3)

The mean weekly earnings of skilled factory workers in one particular country were $19.50 with a standard deviation of $ 4, while for its neighboring country the figures were Rs. 75 and Rs. 28 respectively.

By calculating coefficient of variation in each case ,find which country has the GREATER VARIABILITY in earnings.

Question No: 35 (Marks: 3)

Suppose an institute offer 3 different statistics courses, 2 different mathematics courses and 4 different management courses then in how many ways the student can choose ONE of the EACH courses?

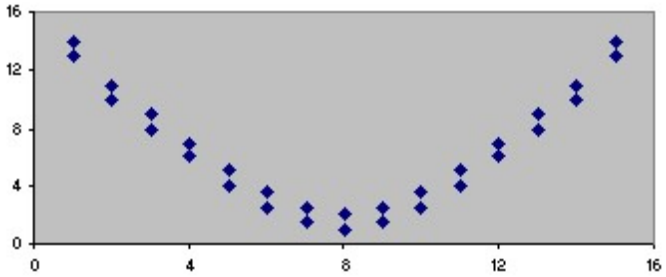
Question No: 36 (Marks: 3)

A group of 30 workers from production department has a mean wage of Rs.120 per day with Standard Deviation = 10. Another group of 50 Workers from Maintenance had a mean of Rs. 130 withStandard Deviation = 12.
Find the difference of two sample means.

s.d+mean=x
mean =x-S.D
mean=38-12
=26
mean=38-12
=26

Question No: 37 (Marks: 5)

The scatterplot below shows the relation between two variables.



Which of the following statements are true? Verify your selected option with solid reason.

I. The relation is strong.
II. The slope is positive.
III. The slope is negative.
(A) I only
(B) II only
(C) III only
(D) I and II
(E) I and III

Accurate Answer is “A”. The relation is strong because the dots are tightly clustered around a line.As we know that the line does not have to be straight for a relationship to be strong. So here in this case the shape is “U Shaped”
Across the entire scatter plot, the slope is zero. In the first half of the scatterplot, the Y variable gets smaller as the X variable gets bigger, so the slope in the first half of the scatterplot is negative. But in the second half of the scatterplot, just the opposite occurs. The Y variable gets bigger as the X variable gets bigger, so the slope in the second half is positive. When the slope is positive in one half of a scatterplot and negative in the other half, the slope for the entire scatterplot is zero.

Question No: 38 (Marks: 5)

Suppose the following table gives the percentage of the number of persons per household in the country for the given year

No. of Persons	1	2	3	4	5 or more
% of households	20	30	18	15	17

Suppose a survey of 1000 households in a city for the year yielded the following data

No. of Persons	1	2	3	4	5 or more
No. of households	270	210	200	100	220

Let Ho be the (Null) hypothesis that the distribution of people in households in the city is the same as the national distribution. Then find the $\chi 2$value

Question No: 39 **(Marks: 5)**

A coin is tossed 10 times. What is the probability that exactly 6 heads will occur?

Success = "A head is flipped on a single coin"
p = 0.5
q = 0.5
n = 10
x = 6
P(x=6) = 10C6 * 0.5^6 * 0.5^4 = 210 * 0.015625 * 0.0625 = 0.205078125

Solved by Chanda Rehman

FINALTERM EXAMINATION

Spring 2010

MTH302- Business Mathematics & Statistics (Session - 4)

Ref No:

Time: 90 min

Marks: 60

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

If the standard deviation of a population is 9, the population variance is

- ► 3
- ► 9
- ► 21.35
- ► **81**

Question No: 2 (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

Solution: A team of 6 members has to be selected from the 10 players. This can be done in 10C6 or 210 ways.
Now, the captain can be selected from these 6 players in 6 ways.
Therefore, total ways the selection can be made is 210*6 = 1260.

Alternatively, we can select the 5 member team out of the 10 in 10C5 ways = 252 ways.
The captain can be selected from amongst the remaining 5 players in 5 ways.
Therefore, total ways the selection of 5 players and a captain can be made = 252*5 = 1260.

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

Aalia received 2 A's and 2 B's in her college courses. What is her grade point average? Assume each course is 3 credits. A = 4, B = 3, C = 2, D = 1

► 3.0
► 3.2
► 3.3
► **3.5 repeated**

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

The sample coefficient of correlation

► Has the same sign as the slope, i.e. *b*
► Can range from -1.00 up to 2.00
► Is also called Peterson's *r*.
► Can range from -3.00 up to 2.00

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

A distribution that has a great many values clustered to the left and then tails off to the right is said to be

► negatively skewed
► positively skewed

- mean
- median

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

Evaluate $(x-y)^4$

- $-x^4+4x^3y-6x^2y^2+4x^1y^3-y^4$
- $x^4-4x^3y+6x^2y^2-4x^1y^3+y^4$ repeated
- $x^4-4x^3y+6x^2y^2-4x^1y^3+y^4+y^5$
- $x^4-4x^3y+6x^2y^2-4y^3+y^4$

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

Which of the following is not a measure of central tendency?

- percentile
- quartile
- standard deviation
- mode

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

If Sxy = -3.27, Sx = 2.416 and r = -0.091, then Standard deviation of Y is

- 15.88
- 14.87
- 13.86
- 12.85

Solution: r = Sxy / Sx*Sy
Then -0.091 = -3.27 / (2.416) Sy
-0.091 (Sy) = -1.3535
Sy = 1.3535/0.091 = 14.87

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

The moving averages of the Prices 30,45,90,110 are

- 60, 85.45
- 45, 88.36
- **55, 81.67**
- 65, 78.45

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

The price at which a business purchases merchandise is called the

► **List**
► Cost
► Investment
► Exchange rate

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

Discounts that are deducted one after the other from the list price are called _____ .

► Series trade discount
► Inconsequential trade discounts
► Spontaneous trade discounts
► Earned trade discounts

Question No: 12 (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: 13 (Marks: 1) - Please choose one

Contribution Margin is the Rs. amount that is equal to ----------

► S – VC
► VC – S
► FC – VC
► VC – FC

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

Ogives at different values determine

► limits .

► frequencies. 182

► cumulative frequencies.

► both (2) & (3).

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

n! = ……

► n (n+1) (n-2)!

► n (n-1) (n-2)!

► n (n+1) (n+2)!

► n (n-1) (n+2)!

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

Expected = …….

► Trend - Seasonal

► Trend + Seasonal 254

► Trend * Seasonal

► Trend / Seasonal

Question No: 17 (Marks: 1) http://vustudents.ning.com - Please choose one

If $\mu_0 = 130, \bar{x} = 150, \sigma = 5, and\ n = 10;\ what\ test\ \ statistic\ is\ appropriate$?

► **Z**

► t

► F

► χ^2

Question No: 18 (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: 19 (Marks: 1) - Please choose one

For the set of data 2, 1, 3, 1, 4, 5, 2, 6, 8 the median is given by

► 4
► 1
► 2
► **3**

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

For two tail test, when $\alpha = 0.05$ the value of Z is

► ± 1.96
► $\pm$ 1.645
► ± 2.326
► None of these

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

Which is the no when it multiply by 57 answer will be 1?

► 1/57
► -57
► 1
► none

Ref 1/57*57 =1

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

Probability of a person's death in a year

► 1/365
► 0
► 1
► Undetermined

Question No: 23 (Marks: 1) http://vustudents.ning.com- Please choose one

If the population standard deviation is not known and the sample size is large(n>=30),then the Test statistic to be used is ----------

► (a) t-test

► **(b) z-test**
► both (a) and (b)
► none of these

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

which of the given function returns the normal distribution for the specified mean and standard deviation.

► NORMSDIST
► NORMDIST 315
► NORMSINV
► NORMINV

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

The price at which investors buy or sell a share of stock at a given time is referred as

► **Face value**
► Market value
► Accumulated value
► Earning value

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

In negative binomial distribution
► trials are independent
► trials are dependent
► probability of success is different on every trial

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

If there is a change of -30% in the price of an item, what does the negative sign show?
► The price is decreasing.
► The price has low rate of change.
► None of the above.
► The price is increasing.

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

The maximum value in an Ogive is always

► 100%. 182

► an upper class boundary.

► a discrete variable.

► All choices are true .

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

The confidence interval is a range of values

► within which both the "true" and "false" value of the rate is expected to occur at same time

► within which the “false” value of the rate is expected to occur

► within which the “true” value of the rate is expected to occur

► None of these

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

In a ----------distribution ,data is spread symmetrically about the mean.

► binomial

► normal

► poisson

Question No: 31 (Marks: 2)

What is the difference between these formulae?

1)

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

2)

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

Question No: 32 (Marks: 2)

Find the value of standard normal equation where mean is 0 and standard deviation is 1

Question No: 33 (Marks: 2)

What will be y-intercept 'b' in the regression line Y=aX+b if Y = 9, X = 3 and a = 2 ?

Solution:

9 = (2 x 3) + b

b = 9 – 6

b = 3 will be the Intercept

Question No: 34 (Marks: 3)

What are the differences between Normal distribution, Binomial Distribution and Poisson distribution?

Question No: 35 http://vustudents.ning.com (Marks: 3)

Write the formula of seasonal variation.

Solution :

Seasonal variation is a component of a time series which is defined as the repetitive and predictable movement around the trend line in one year or less. It is detected by measuring the quantity of interest for small time intervals, such as days, weeks, months or quarters.

Hence

Season variation = Actual – Trend

Question No: 36 (Marks: 3)

If the two sided $100(1-\alpha)\%$ confidence interval based on random sample taken from $x \sim N(\mu, \sigma^2)$ is $12.18 < \mu < 20.56$. *Find* $\bar{x}$.

Question No: 37 (Marks: 5)

Suppose a password consists of 4 charcters, the first 2 being the letters in the (English) alphabet and the last 2 being digits. Find the number n of:

(a) passwords

(b) passwords beginning with a vowel.

Question No: 38 (Marks: 5)

Calculate the S.D of the following data

2, 4, 4, 5, 10, 16, 17

Solution:

$\overline{X}$ **is the mean which is 8.28**

X	$X-\overline{X}$	$(X-\overline{X})2$
2	-6.28	39.4384
4	-4.28	18.3184
4	-4.28	18.3184
5	-3.28	10.7584
10	1.72	2.9584
16	7.72	59.5984
17	8.72	76.0384
58		225.4288

N = 7

$$\overline{X} = \frac{58}{7} = 8.28$$

$$S.D = \left\{ \frac{SUM (x-\bar{x})2}{n-1} \right\}^{1/2}$$

1/2

$$\left\{ \frac{225.42}{6} \right\}$$

= 6.12 is the answer

Question No: 39 http://vustudents.ning.com (Marks: 5)

If X is a Poisson random variable with parameter $\lambda = 2$, find the probabilities for x = 0, 1, 2 and x≥3.

Solved by Chanda Rehman

FINALTERM EXAMINATION

Spring 2010

MTH302- Business Mathematics & Statistics

Ref No: 1506089

Time: 90 min

Marks: 60

Question No: 1 (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: 2 (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 repeated**

► 210

► 10C6 * 6!

► 10C5 * 6

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

When there is no linear correlation between two variables, what will the value of r be?

► -1

► +1

► **0**

► a very small negative number

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

The weighted mean is a special case of the

► Mean

► Harmonic mean

► Mode

► Geometric mean
http://en.wikipedia.org/wiki/Weighted_mean

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

A scatter diagram is a chart

► In which the independent variable is scaled along the vertical axis.

► In which the dependent variable is scaled along the horizontal axis.

► That portrays the relationship between two variables.

► Dependent and independent variables are always directly proportional doubt

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

The sample coefficient of correlation

► Has the same sign as the slope, i.e. *b*

► Can range from -1.00 up to 2.00

► Is also called Peterson's *r*.

► Can range from -3.00 up to 2.00

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

If sign of r is negative then it indicates

► Direct relationship between X & Y

► Indirect relationship between X & Y

► X & Y equal

► X & Y are square

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

A distribution that has a great many values clustered to the left and then tails off to the right is said to be

► negatively skewed

► positively skewed

► mean

► median

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

Evaluate ${}^{6}C_{4}$

► 20

► 15

► 25

► 30

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

In the equation $\overline{Y} = a + b\overline{X}$ the formula to calculate b is

► $b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$ correct

► $b = \frac{n\sum xy - \sum x \sum y}{\sum x^2 - (\sum x)^2}$

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)}$$

►

$$b = \frac{\sum xy - \sum x \sum y}{n\sum x^2 - (\sum x)^2}$$

►

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

Monomial is

► A polynomial

► Only Single variable

► Only Single constant term

► A term of both variable and constant

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

Find x if 3(x + 2) - 7 = 11.

► 2

► -4

► 6

► 4

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

Markup is an amount added to a ……while calculating a selling price

► Cost price 100

► Bid price

► Offer price

► None of these

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

Anwar buys a pencil for Rs 3. He sells it for Rs 5. What is his Percent Markup on Selling Price?

► 20%

► 30%

► 40%

► 50%

5-3=2
2*100/5
40%

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

If x: y = y: 1, then

- ► X = y
- ► X = y^2
- ► X = y / x
- ► X = -y

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

All of the following are measures of central tendency except the

- ► range.
- ► mode.
- ► mean.
- ► median.

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

C_0^{100} = ---

- ► 100

► 0

► 1

► None of these

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

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

► ± 1.96

► $\pm$ 1.645

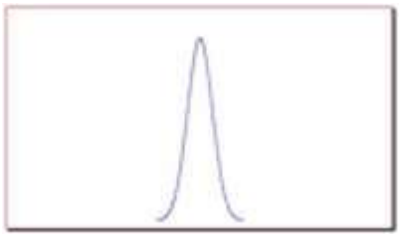
► ± 2.326

► ± 2.575

see table

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

What do you deduce from the diagram of the Normal Distribution?



► Mean is greater than Standard deviation.

► Mean is lesser than Standard deviation.

► Mean is equal to Standard deviation.

► No result can be drawn.

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

$Formula = \frac{e^{-\lambda}\ \lambda^{x}}{x!}$ is used to calculate ----------

► Normal Distribution

► Binomial Distribution

► **Poisson Distribution**

► Cumulative Poisson Distribution 303

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

For the set of data 2, 1, 3, 1, 4, 5, 2, 6, 8 the median is given by

► 4

► 1

► 2

► 3

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

The $\chi 2$ distribution is ----------

► Positively skewed

► Negatively skewed

► Symmetrical

► None of these

http://en.wikipedia.org/wiki/Chi-square_distribution

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

The value of $\chi 2$ is always ----------

► Positive

► Negative

► 0

► None of these

The absolute value of two numbers is ALWAYS positive. This is because absolute ...
Why is the product of two absolute values is always a positive number? ...

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

Badri has 9 pairs of dark Blue socks and 9 pairs of Black socks. He keeps

them all in a same bag. If he picks out three socks at random what is the probability he will get a matching pair?

► **(2*9C2 * 9C1) / 18C3 repeated**

► (9C2 * 9C1) / 18C3

► 1

► 0

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

For any event probability is always

► Less than zero

► Equal to zero

► Not equal to zero

► **Lies between 1 and 0**

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

When a straight line is fitted to time series data, it is called

► **Linear trend correct**

► Non-Linear equation

► Linear equation

► Linear regression

http://maeconomics.webs.com/Statistics/trend_series_analysis1.htm

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

Given a matrix A such that

$$A=\begin{bmatrix}-3 & -2\\ 4 & 3\end{bmatrix}$$

Then A^{-1} will be

► $\begin{bmatrix}-3 & -2\\ 4 & -3\end{bmatrix}$

► $\begin{bmatrix}3 & 2\\ -4 & -3\end{bmatrix}$

► $\begin{bmatrix}3 & 2\\ 4 & -3\end{bmatrix}$

► None of these

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

In negative binomial distribution

► trials are independent

► trials are dependent

► probability of success is different on every trial

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

Ali has improved his typing speed from 40w/m to 60w/m.The percentage improvement is

► 20%

► 150%

► 50%

► 30%

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

Standard deviation of the sampling distribution tells us

► how the distribution can be calculated

► **how the sample values differ from the mean doubt**

► how the error canbe calculated

► none of these

http://en.wikipedia.org/wiki/Standard_deviation

Question No: 31 (Marks: 2)

What will be the correlation coefficient r between variables X and Y if varX=4,varY=9 and Cov(X,Y)=3 ?

Answer
R=9

Question No: 32 (Marks: 2)

What are the disadvantages for the so larger & so smaller values of smoothing constants in forecast analysis?
ANSWER :
A small value will have less of a smoothing effect and be more responsive notice that this technique same disadvantages as the simple moving average as larger values actually reduced the level of smoothing effect.

Question No: 33 (Marks: 2)

What will be the standard deviation of a sample of size 25 if its population variance is 2 .

ANSWER
Standard deviation = 12.5

Question No: 34 (Marks: 3)

A random sample of size n is drawn from normal population with mean 6 and standard deviation

1.2; if z = 4, $\bar{x}$ = 8 what is n?

ANSWER :

N=2

Question No: 35 (Marks: 3)

Find Covariance Cov(X,Y) if var(X)=7,var(Y)=6 and correlation coefficient r between X and Y is 0.3?
ANSWER
COV(X,Y)=1.3

Question No: 36 (Marks: 3)

In a school, 50% students study science subjects and 30% of them study biology. What is the probability that the student studies Biology?

Question No: 37 (Marks: 5)

Suppose there are 12 married couples in a party. Find the number n of ways of choosing a man and a woman from the party such that the two are:

a) married to each other (2)
b) not married to each other. (3)

Question No: 38 (Marks: 5)

$$r = \frac{n(\sum XY) - (\sum X)(\sum Y)}{\sqrt{n(\sum X^2) - (\sum X)^2}\sqrt{n(\sum Y^2) - (\sum Y)^2}}$$

Using the formula find the coefficient of linear correlation with the help of given table

X	5	6	8	9
Y	6	7	9	10

ASNWER :

∑X	∑Y	∑x2	∑y2	∑xy
5	6	25	36	30
6	7	36	49	42
8	9	64	81	72
9	10	81	100	90
28	32	206	266	234

Put the values in the formula

$$R= \frac{4(234)-(28)(32)}{(4(206)-(784))*1/2*(4(266)-(1024))*1/2}$$

$$= \frac{936-896}{(824-784)*1/2*(1064-1024)*1/2}$$

$$= \frac{976}{(40)*1/2*(40)*1/2}$$

$$= \frac{40}{20*20}$$

r= 0.10

Question No: 39 (Marks: 5)

http://vustudents.ning.com/

According to a survey, a certain city has a population of 100,000 people age 22 and over with standard deviation of 49. Of them 60% are married . If we draw a sample of 1600 people then find the chance that 58% or less of the people are married.

161. How many words of 4 consonants and 3 vowels can be made from 12 consonants and 4 vowels, if all the letters are different?

A. 16C7 * 7!
B. 12C4 * 4C3 * 7!
C. 12C3 * 4C4
D. 12C4 * 4C3

Ans : B

162. In how many ways can 5 letters be posted in 3 post boxes, if any number of letters can be posted in all of the three post boxes?

A. 5C3
B. 5P3
C. 53
D. 35

Ans : D

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

A. 271
B. 300
C. 252
D. 304

Ans : B

164. There are 6 boxes numbered 1, 2,...6. Each box is to be filled up either with a red or a green ball in such a way that at least 1 box contains a green ball and the boxes containing green balls are consecutively numbered. The total number of ways in which this can be done is

A. 5
B. 21
C. 33
D. 60

Ans : B

165. What is the value of 1*1! + 2*2! + 3!*3! + ... n*n!, where n! means n factorial or n(n-A(n-2)...1

A. n(n-A(n-A!))
B. (n+A!)/(n(n-A))
C. (n+A! - n!)
D. (n + A! - 1!)

Ans : D

166. There are 5 Rock songs, 6 Carnatic songs and 3 Indi 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?

A. 15624
B. 16384
C. 6144
D. 240

Ans : A

167. In how many ways can the letters of the word MANAGEMENT be rearranged so that the two As do not appear together?
   A. 10! - 2!
   B. 9! - 2!
   C. 10! - 9!
   D. None of these

Ans : D

168. How many five digit numbers can be formed using the digits 0, 1, 2, 3, 4 and 5 which are divisible by 3, without repeating the digits?
   A. 15
   B. 96
   C. 216
   D. 120

Ans : C

169. How many words can be formed by re-arranging the letters of the word PROBLEMS such that P and S occupy the first and last position respectively?
   A. 8! / 2!
   B. 8! - 2!
   C. 6!
   D. 8! - 2*7!

Ans : C

170. Four dice are rolled simultaneously. What is the number of possible outcomes in which at least one of the die shows 6?
   A. 6! / 4!
   B. 625
   C. 671
   D. 1296

Ans : C

Solved by Chanda Rehman& Anjum

FINALTERM EXAMINATION

Spring 2010

MTH302- Business Mathematics & Statistics

Time: 90 min
Marks: 60

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

How many words of 4 consonants and 3 vowels can be made from 12 consonants and 4 vowels, if all the letters are different?

- ► 16C7 * 7!
- ► 12C4 * 4C3 * 7! correct
- ► 12C3 * 4C4
- ► 12C4 * 4C3

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

If the probability of an event happening is then the probability of it not happening is

- ► 4/3
- ► 3/4
- ► 2/3
- ► 1/3

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

To avoid distortion of extreme values, a good indicator would be the

- ► Mean
- ► Median correct 164
- ► Weight-Mean
- ► Mode

http://highered.mcgraw-hill.com/sites/0073137677/student_view0/chapter22/multiple_choice_quiz.html

Question No: 4 (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 correct
- ► 10^5
- ► 10P5
- ► 10C5

http://way2freshers.com/cat/cat-standard-multiple-choice-question-paper-3.html

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

The .....is a relationship that describes the dependence of the expected value of the dependent random variable for a given value of the independent non random variable.

- ► **Correlation**
- ► **Regression** pag : 207
- ► **Positive correlation**
- ► **Hypothesis**

Question No: 6 (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, which measure of central tendency is least representative of the "typical" student?

- ► **Mean**
- ► **Median**
- ► **Mode** pag: 192
- ► **Midrange**

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

Probability of an event lies between

- ►
- ►
- ►
- ►

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

What is 1st quartile of the following numbers?

39, 29.4, 17, 23

- ► **20.5**
- ► **21.5**
- ► **22.5**
- ► **23.5**

1Q = (n+1)/4

= 4+1/4

= 5/4 = 1.25

Q1 = 2nd value + 0.3 (3rd value – 2nd value)

= 23 + 0.3(29.4 – 23)

= 23 + 0.3 (6.4)

= 23 + 2

= 25

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

If high or low numbers have a significant effect on a list of numbers, the ---------- may be better than the mean.

- ► **mode**
- ► **median**
- ► **range**
- ► **quartile**

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

The correlation coefficient provides:

- ► **a measure of the extent to which changes in one variable cause changes in another variable.**
- ► **a measure of the strength of the linear association between two categorical variables.**
- ► **a measure of the strength of the association (not necessarily linear) between two categorical variables.**
- ► **a measure of the strength of the linear association between two quantitative variables.**
- ► **a measure of the strength of the linear association between a quantitative variable and a categorical variable.**

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

The RSQ of any data is

- ► **Square root of correlation coefficient.** Pag:235
- ► **Square of correlation coefficient.**
- ► **Correlation coefficient.**
- ► **Slope of the data.**

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

Prices are 100,110,120,130 and Moving averages are 110,120 Now Actual- Trend **are**

- ► **110, 120**
- ► **0, 0**
- ► **10, 20**
- ► **-10, 10**

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

There are 6 flags to give signal, now use 3 flags and guess the no. of arrangements

► **562**
► **456**
► **235**
► **120**

Question No: 14 (Marks: 1) - Please choose one
The measure of the degree to which any two variables vary together is called
► **Variance**
► Correlation **pag:** 208

► **Mean Deviation**
► **Positive Variance**

Question No: 15 (Marks: 1) - Please choose one
To add numbers based on criteria stored in a separate range we use
► **IF and SUM functions.**
► **DSUM function.**
► **AVERAGE function.**
► **all functions in above given choices.**

Question No: 16 (Marks: 1) - Please choose one
If the basic salary of an employee is 8, 000 Rs. allowances are 6000 Rs. and total cost of leaves per year is equal to 28280 Rs. then the cost of leaves as percent of gross salary is
► **29.46%**
► 16.83%
► **22.23%**
► **28.28%**
28280/12x14000 x100
= 28280/168000 x 100
= 16.83%

Question No: 17 (Marks: 1) - Please choose one
If C is the cost and S is the selling price of a certain item then the formula for its markup is given by
► **(S-C)/S *100%**
► **(S-C)/C *100%**
► **(C-S)/S *100%**
► **(C-S)/C *100%**

Question No: 18 (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**

= fc/cm
= 5000/30
= 167 units

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

For any two non-disjoint events; A and B. P() =

- ►
- ►
- ►
- ►

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

What do you deduce from the diagram of the Normal Distribution?

- ► **Mean is greater than Standard deviation.**
- ► **Mean is lesser than Standard deviation.**
- ► **Mean is equal to Standard deviation.**
- ► **No result can be drawn.**

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

In the regression line Y = a + bX,where b is slop of the line

- ►
- ►
- ►
- ►

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

The value of c2 is always ----------

- ► Positive correct
- ► **Negative**
- ► 0
- ► **None of these**

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

Which of the following is a continuous distribution?

- ► **Binomial Distribution**
- ► **Poisson Distribution**

► **Normal Distribution**
► **Hypergeometric Distribution**

Question No: 24 (Marks: 1) - Please choose one
which of the given function returns the normal distribution for the specified mean and standard deviation.
► **NORMSDIST**
► **NORMDIST** pag; 315

► **NORMSINV**
► **NORMINV**

Question No: 25 (Marks: 1) - Please choose one
A hypothesis specifying the population distribution is called

► **composite hypothesis**

► **test statistic**

► **alternative hypothesis** pag: 330

► **simple hypothesis**

Question No: 26 (Marks: 1) - Please choose one
The world is getting warmer — and U.S. scientists now know precisely how much warmer. They calculated the average percentage rise of 0.015% at the end of the century. If the current average temperature of the planet is X , what would be the average temperature of the earth at the end of 4008 AD?
► **X(1+0.015)^2**
► **X(1+0.015%)^2**
► **2(1+)^0.015**
► **X(1+X)0.015**

Question No: 27 (Marks: 1) - Please choose one
What will be the simple interest earned on an amount of Rs. 16,800 in 9 months at the rate of % p.a?
► **Rs. 787.50**
► **Rs. 812.50**
► **Rs 860**

► **Rs. 887.50**

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

If there is a change of -30% in the price of an item, what does the negative sign show?

► The price is decreasing.
► **The price has low rate of change.**
► **None of the above.**
► **The price is increasing.**

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

A ---------- shows by table, the number of times event(s) occurs.

► **normal distribution**
► **poisson distribution**
► **frequency distribution** PAG: 166
► **binomial distribution**

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

A rule or formula that provides a basis for testing a null hypothesis is called

► **population statistic**
► **confidence coefficient**
► **size of the test**
► **test statistic**

Question No: 31 (Marks: 2)

When the slope b of the regression line Y = a + bX is minimum and maximum? PAG:240

Question No: 32 (Marks: 2)

Define Cumulative Poisson distribution.

Question No: 33 (Marks: 2)

Find the value of, where 95% confidence interval is given.

Question No: 34 (Marks: 3)

What is the purpose of Regression Analysis?

Question No: 35 (Marks: 3)

Explain Poisson distribution.

Question No: 36 (Marks: 3)

Find proportion of bags which have weight in excess of 505 g.

Mean = 500.

StDev = 2.5 g
(For z=2.00 probability is 0.4772)

Question No: 37 (Marks: 5)

Find the slope of the regression line Y=aX+b with the help of following data

X

	4	**3**	**5**	**7**
Y	**7**	**8**	**9**	**12**

Question No: 38 (Marks: 5)

A coin is tossed 10 times. What is the probability that exactly 6 heads will occur?

Solution:

When a coin is toss then probability of success (head) p= ½ so probability of failure is also ½ =1- ½ =q

Use binomial dist: ncxp^xq^n-x

P(x=6) = 10c6 (1/2)^6 (1/2)^10-6 = 105/512

Question No: 39 (Marks: 5)

According to a survey, a certain city has a population of 100,000 people age 22 and over with standard deviation of 49. Of them 60% are married . If we draw a sample of 1600 people then find the chance that 58% or less of the people are married.0020

Four dice are rolled simultaneously. What is the number of possible outcomes in which at least one of the die shows 6?

A. 6! / 4!
B. 625
C. 671
D. 1296

When 4 dice are thrown, what is the probability that the same number appears on each of them?

A. 1/36
B. 1/18

C. 1/216
D. 1/5

All means should be rounded to the nearest tenth.
True
False

The median is the middle value for an even number of values.
True
False

Frequency of occurrence is used in finding the weighted mean.
True
False
A line graph may be used to discover trends.
True
False

Bar charts are non-visual presentation of data.
True
False

Find the median from the following numbers: 16, 9, 8, 6, 5, 1, 9, 17

8
8.5
9.5
16

Joan Riveira received 2 A's and 2 B's in her college courses. What is her grade point average? Assume each course is 3 credits. A = 4, B = 3, C = 2, D = 1
3.0
3.5
3.3
3.2

Today the price of a jeep is $18,000. In 1970 the price was $3,000. What is the price relative?

600
166
300
400

Which is NOT correct?
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

The mean and the mode are the two most common averages used to represent an entire group of numbers.
True
False

The median never includes extreme values when finding the center of the data.
True
False

A weighted mean could be used for values appearing more than once.
True
False

There is no mode if all numbers are different.
True
False

Bar graphs cannot show changes that have a occurred over time.
True
False

The mean of the following is: 15,8,2,5,6
9.9
10.0
10.2
10.1
None of the above

Find the median from the following numbers: 15,5,6,9,2,8

6

7

8

15

Lois Long received 3 A's and 1 B in her college courses. What is her grade point average? Assume each course is 3 credits. A=4, B=3, C=2, D=1

3.50 correct

3.75

3.00

2.80

4+4+3+3/2 =3.50

The standard deviation measures:

The mode

The spread of data around the mean

The medium

All bar graphs

Calculate the range for the following numbers: 2, 15, 8, 4, 9

2

15

13

17

The standard deviation for 2, 15, 8, 4, 9 is:

8

101.2

25.3

5.03

Normal distributions are symmetrical about the mean.

True

False

A battery has a useful life of 10 hours and is normally distributed with a standard deviation of 1 hour. Calculate the useful life of the battery with two standard deviations of the mean:

8 and 12 hours

9 and 11 hours

10 and 12 hours

10 and 11 hours

Today the price of a jeep is $19,000. In 1970 the price was $2,000. What is the price relative?
950
850
750
650

Index numbers are compared with the base number which is taken as:
1
100
1000
None of the above

An equation is:
A math expression of inequality
A math expression of constants
A math unknown
A math expression of equality

Jerry's age 10 years ago can be expressed as:
A-10
A+10
2A-10
2A+10

What number decreased by 410 equals 1,015?
1425

FINALTERM EXAMINATION
Spring 2009
MTH302- Business Mathematics & Statistics

Time: 120 min
Marks: 80

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

The rate of change along the regression line is called

► Linear regression
► Non Linear regression
► **Slope**

► Curve

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

An arrangement of data by successive time periods is called a

► Exponential Smoothing

► **Time Series**
► Combination

► Permutation

Question No: 3 (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: 4 (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

► **Coefficient of variation**

► the standard deviation

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

The repetitive movement around a trend line in a 4- month period is best described by

► **Seasonal variation doubt**
► Secular trend

► Cyclical fluctuation

► Irregular variation

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

What variation does moving average method eliminate?

► Seasonal
► Cyclical
► Irregular
► Secular trend

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

If the estimating equation is Y = a – b X ,Which of the following is true

► a)The y intercept is b
► b) Slope of line is negative
► c) There is inverse relationship

► **d) b & c**

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

45% of what is 9?

►
►
►
► 1

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

For what purpose is the method of least squares used on time-series data?

► It is used for eliminating irregular movements

► It is used for obtaining the trend equation.

► It is used for deseasonalizing the data.

► It is used for exponentially smoothing a series.

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

Under which of the following conditions would the standard deviation assume of negative value.

► When all the data values were negative

► When more than half of the data values were negative.

► If all the data values were the same.

► **The standard deviation cannot be negative.**

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

Suppose we developed the following least squares regression equation: $Y = 3.5 + 2.1X$. Which of the following statements is correct?

► **The dependent variable increases 2.1 for an increase of 1 in *X***

► The equation crosses the *Y*-axis at 3.

► If $X = 5$, then $Y = 15$.

► X and Y are inversely proportional

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

The method of least squares finds the best fit line that _____ the error between observed & estimated points on the line

► Maximizes

► **Minimizes**

► Reduces to zero
► Approaches to infinity

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

If the dependent variable increases with the independent variable then the coefficient of correlation is

► 0 to -1

► 0 to – 0.5

► 0 to -2

► 0 to 1

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

Two dice are rolled and the numbers are added together. The probability of the total being 12 is $\frac{1}{36}$

► True
► False

Question No: 17 (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 median is

► 2
► 3
► 3.5
► 2.5

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

If the salary of an employee is as follows:

Basic salary = 12,000 Rs.
Allowances = 9,000 Rs.

then the taxable income of employee is ----------

► Rs. 12,000
► Rs. 21,000
► Rs. 15,000
► Rs. 9000

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

Which of the following is NOT a possible probability?

► 25/100

► 1.25
► 1
► 0

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

P(A and B) = P(A) x P(B)

What does this formula represent?

► (a) The events A and B are Dependent.
► (b) The events A and B are Exclusive.
► **(c) The events A and B are Independent.**
► (d) Both (a) and (b)

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

Which of the following divides a group of data into four subgroups?

► **quartiles**
► percentiles
► standard deviation
► median

Question No: 22 (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: 23 (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: 24 (Marks: 1) - Please choose one

If a dice is thrown. What is the chance of getting an even number or a number divisible by 3?

► **2 / 6**
► 3 / 6
► 4 / 6
► 5 / 6

When a die is thrown S={1,2,3,4,5,6} divisible by 3={3,6} so 2/6

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

The RSQ of any data is

► Square root of correlation coefficient.
► **Square of correlation coefficient.**
► Correlation coefficient.
► Slope of the data.

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

Write a formula to find the simple interest (I) if $5000 is invested at 4% for 2 years.

► **I=PRT**
► I=P+R+T
► I=PT
► I=P(R+T)

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

If **Sale Price** = Rs. 3810 and **Original Price** = Rs. 7270 then the **Markdown Rate** is equal to

► **47.59 %**
► 45.57 %
► 43.53 %
► 48.9 %

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

If a birthday cake is cut into eight equal parts then what percent of the cake is a single pie?

► 20%
► 15.75%
► **12.5%**
► 11%

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

Amount of discount is obtained as

► **Percentage of Discount x List Price**
► Percentage of Discount / List Price
► Percentage of Discount - List Price
► None of these

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

the algebraic expression of the form *ax^2+bx+c* is called

► monomial
► binomial
► **quadratic equation correct**
► **trinomial**

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

…….. Arithmetic operations provide the foundation for all mathematical operations are:

► 4
► **5**
► 3
► 6

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

The value of x for the equation -(-x - 5) = x – 2 is ----------

- ►no solutions
- ►-5
- ►3
- ►

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

To add numbers based on criteria stored in a separate range we use

- ►IF and SUM functions.
- ►DSUM function.
- ►AVERAGE function.
- **► all functions in above given choices.**

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

If ratio of boys and girls in a class is 7: 5, which of the following can't be the total number of the students in the class?

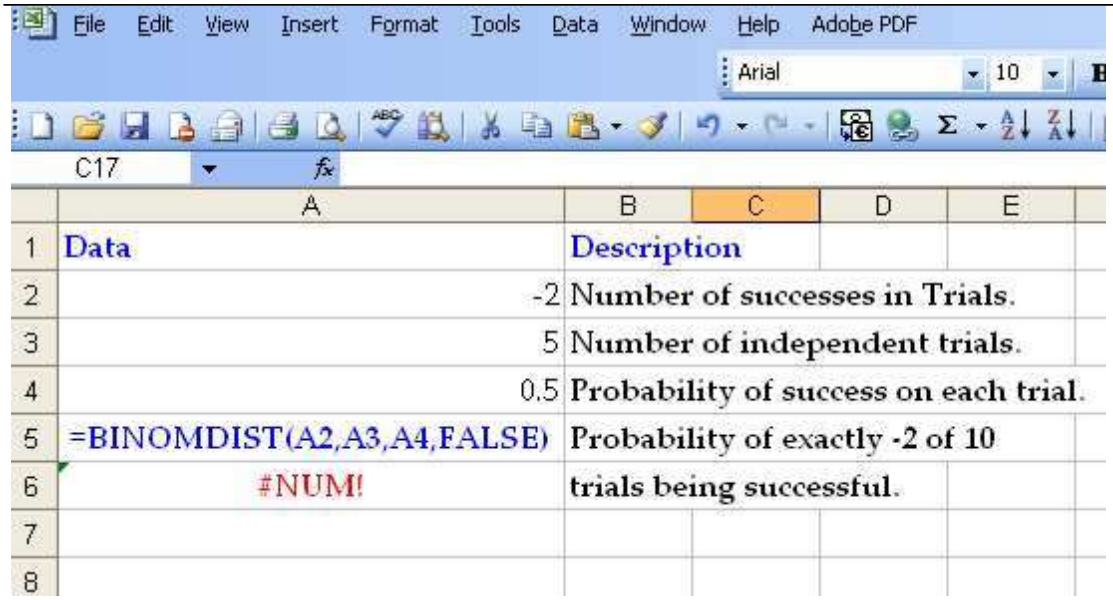
- ►36
- ►50
- ►60
- ►120

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

Original cost of a share of stock which is shown on the certificate is called

- **►face value**
- ►market value
- ►liabilities
- ►Asset

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



The result of BINOMDIST is #NUM. Why?

- ►One parameter is missing.
- ►Third parameter is FALSE
- **►The number of successes in trials is negative.**
- ►Probability of success on each trial is not suitable.

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

The variable plotted on the horizontal or X-axis in a scatter diagram is called the

- **► Independent variable**
- ► Dependent variable
- ► Correlation variable
- ► scatter variable

Question No: 38 (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: 39 (Marks: 1) - Please choose one

The value of c2 can never be----------

- ► Zero
- ► **Negative**
- ► Greater than 1
- ► Less than 1

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

A line graph shows …… plotted on a graph.

- ► Pictures
- ► **Points**
- ► Bars
- ► Columns

Question No: 41 (Marks: 2)

At Pizza Parlor, in addition to cheese there are 8 different toppings. If you can order any number of toppings, then how many different toppings are possible?

Question No: 42 (Marks: 2)

Write the equation of the normal curve with mean μ and S.D σ.

Solution:

$$Z = \frac{X - \mu}{\sigma}$$

Question No: 43 (Marks: 2)

What will be the

Question No: 44 (Marks: 3)

Given for a frequency distribution mode = 18, mean = 21.Calculate median . Using these values comment on skewness of distribution.

Solution:

Mean – Mode = 3 (mean - Median)

21 – 18 = 3 (21 - Median)

3/3 = 21 - Median

1 = 21 – Median

1 + median = 21
Median = 21-1
Median = 20
SKEWNESS of DIST:
Mean > Median > Mode
21 > 20 >18 Positively skewed distribution

Question No: 45 (Marks: 3)

Explain the difference between Binomial distribution and negative binomial distribution with the help of an example.

Question No: 46 (Marks: 3)

Determine two variable X and Y are correlated or uncorrelated by using the following table

X	0	4
Y	2	2

Question No: 47 (Marks: 5)

A card is drawn at random from a deck of cards. Find the probability of getting a queen.

Solution:
TOTAL CARDS = 52
TOTAL QUEEN = 4
SO PROBABILITY OF GETTING A QUEEN IS = 4/52

Question No: 48 (Marks: 5)

A random sample of 36 drinks from a soft drink machine has an average content 7.6 ounces with an s.d 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: 49 (Marks: 5)

Briefly explain with the help of examples that how mean is affected by presence of extreme values.

Question No: 50 (Marks: 10)

Answer the following

a) Define the *Finite Population Correction Factor and when we multiply this factor with STEM and STEP?*
b) A scientist takes a sample of 25 branches of different types of trees from a forest for a certain experiment. The sample weight is 10K g. and Standard deviation is 2 Kg.
Calculate with 95% confidence the range of the population mean.

SOLVED BY CHANDA REHMAN
FINALTERM EXAMINATION
Spring 2009
MTH302- Business Mathematics & Statistics (Session - 2)

Time: 120 min
Marks: 80

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

The Basic salary of an employee is Rs 7,000. What is the contribution of the company on account of gratuity to the Gratuity Trust Fund?

► **Rs 636.36**
► Rs 6363.6
► Rs 63.636
► Rs 6363

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

An arrangement of data by successive time periods is called a

► Exponential Smoothing

► Time Series
► Combination

► Permutation

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

The graph of time series is called

► Straight line

. ►Smooth Curve

. ►Parabola

. ►**Histogram**

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

When a straight is fitted to time series data, it is called

. ►Linear equation

. ►Linear regression

. ►Linear trend

. ►Non-Linear equation

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

What variation does moving average method eliminate?

. ►Seasonal

. ►Cyclical

. ►Irregular

. ►Secular trend

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

The temperature was 30°C in the afternoon and the temperature dropped to 26°C in the evening. Find the percentage change in the temperature.

. ►13.33%

. ►15%

. ►14.26%

. ►12%

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

Observed errors, which represent information from the data which is not explained by the model, are called?

- ►Marginal values
- ►Residuals
- ►Mean square errors
- ►Standard errors

Question No: 8 (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: 9 (Marks: 1) - Please choose one

Frequency of occurrence is used in finding the

- ►weighted mean
- ►median
- ►mode
- ►variance

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

If the equation of regression line is y = 5, then what result will you take out from it?

- ►The line passes through origin.
- ►The line passes through (5, 0)
- ►The line is parallel to y-axis.
- ►The line is parallel to x-axis

Question No: 11 (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: 12 (Marks: 1) - Please choose one

In how many ways can the letters of the word MANAGEMENT be rearranged so that the two As do not appear together?

- ► 10! - 2!
- ► 9! - 2!
- ► 10! - 9!
- ► None of these

Ref

http://questions.ascenteducation.com/iim_cat_mba_free_sample_questions_math_quant/permutation_combination/permutation_words_rearrangement_100702.shtml

Question No: 13 (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: 14 (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: 15 (Marks: 1) - Please choose one

The midrange is **not** greatly affected by outliers

- ► False
- ► True

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

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

- ► fraction
- ► decimal
- ► percentage

► All of these.

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

The moving averages of the Prices 90,70,30,110 are

► **63.33, 70**
► 73.33,80
► 45.45, 68
► 65.50, 75

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

Sum of annuity is always

► Present value

► Future value

► Net present value

► Current value

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

Write a formula to find the simple interest (I) if $5000 is invested at 4% for 2 years.

► I=PRT
► I=P+R+T
► I=PT
► I=P(R+T)

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

Solve 3x = 27 for x

► 0.9
► 6
► 18
► 9

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

If the value of *r* is zero then the graph of the data points shows

► evenly skewness
► positively scattered
► no associations
► negative associations

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

The minimum number of points required to calculate the intercept of a straight line is/are

► one
► two
► three
► one or theree

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

What will be the rate of 20 as a base and percentage is 25?

► 120%

► 125%

► 130%

► None of these

Percentage
Percentage is formed by multiplying a number called the base by a percent, called the
rate. Thus
Percentage = Base x Rate
25=20*Rate

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

The value of x after solving the following linear equation is

$$-2x + 6 = 4x - 2$$

► 0
► 3
► 1/2
► 4/3

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

Order of a Matrix =

- ► Number of Columns xNumber of Rows
- ► Number of Rows / Number of Columns
- ► Number of Rows x Number of Columns
- ► None of these

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

Markdown means a reduction from the

- ► Original cost price
- ► Original sale price
- ► Original Net price
- ► None of these

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

If an asset is purchased at Rs 3000 on the date 6/29/2008 and the first depreication 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: 28 (Marks: 1) - Please choose one

Which of the following is the system of linear equations?

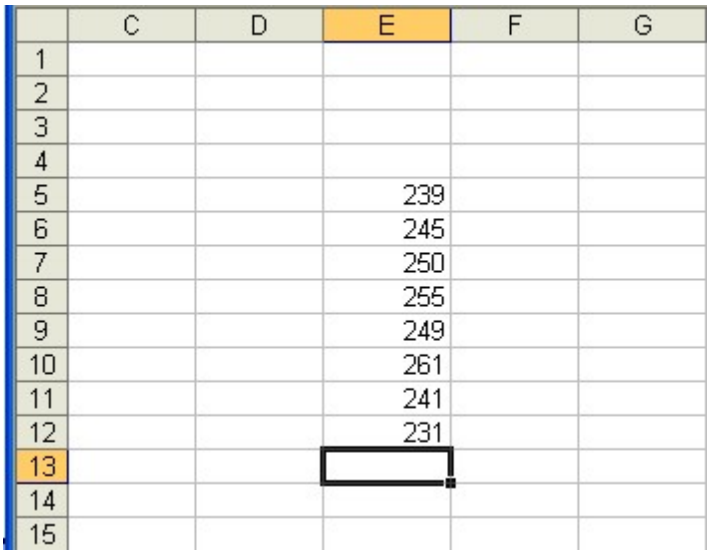
- ► $4x + 6y = 9$
- ► $3x^2 + 5y^2 = 7 , x + y = 8$

► $5x + 7y = 12,\ 2x + 8y = 10$

► $2x^2 - 5x + 7 = 0$

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

To find average of numbers given in figure ,one can apply the excel formula



	C	D	E	F	G
1					
2					
3					
4					
5			239		
6			245		
7			250		
8			255		
9			249		
10			261		
11			241		
12			231		
13					
14					
15					

► =AVERAGE(E12:E13)

► =AVERAGE(E5:E12)

► =SUMIF(E5:E12)

► =DSUM(E5:E12)

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

An arrangement of all or some of a set of objects in a ….. order is called permutation.

► Definite

► Indefinite

► Same

► Different

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

6!.....

► **720**
► 620
► 420
► 520

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

Expected = …….

► Trend - Seasonal
► Trend + Seasonal
► Trend * Seasonal
► Trend / Seasonal

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

Random = …….

► Actual / expected
► Actual +expected

► Actual * expected
► Actual - expected

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

The standard deviation is

► a measure of variability.
► the square root of the variance.
► twice the standard error.

► half the range.

Question No: 35 (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.

C.V=S.D/mean*100

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

If a hypothesis specifies the population distribution is called

- ► composite hypothesis
- ► test statistic
- ► alternative hypothesis
- ► simple hypothesis

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

Which distribution is most commonly used to model the number of random occurrences of some phenomenon in a specified unit of space or time?

- ► Normal Distribution
- ► Binomial Distribution
- ► Poisson Distribution
- ► Negative Binomial Distribution

Question No: 38 (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: 39 (Marks: 1) - Please choose one

Chi-distribution is used to decide whether or not certain variables are

- ► Dependent
- ► Independent
- ► Discrete
- ► Continuous

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

Time series data is analyzed by the moving average.

- ► True

► False

Question No: 41 (Marks: 2)

A student is chosen at random from a class of 16 girls and 14 boys. What is the probability that the student chosen is not a girl?

Solution:

P=Total number of events/ total number of possible outcome
P = 14/30
P= 0.46

Question No: 42 (Marks: 2)

For the marks obtained by 9 students ,given Q1 = 56 marks ,Q2= 65 marks , Q3= 74 marks .Find Q.D .

Solution:

Quartile Deviation = Q3-Q1/2
Quartile Deviation = 74-56/2
Quartile Deviation = 18/2
Quartile Deviation = 9 Answer

Question No: 43 (Marks: 2)

Describe the difference between Poisson distribution and Cumulative Poisson Distribution.

Solution:

Poisson Distribution

A Poisson random variable is the number of successes that result from a Poisson experiment. The probability distribution of a Poisson random variable is called **a** Poisson distribution**.**

Cumulative Poisson Probability

A cumulative Poisson probability refers to the probability that the Poisson random

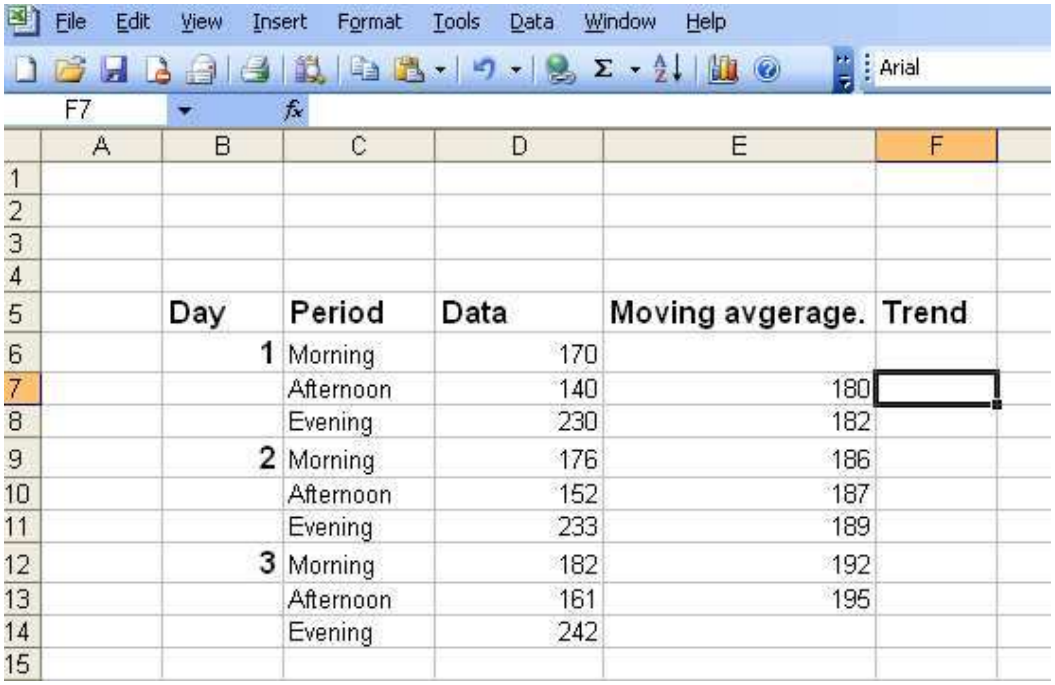
variable is greater than some specified lower limit and less than some specified upper
limit.

Question No: 44 (Marks: 3)

Eleven subjects carried out the same task using a pocket calculator. The times (in seconds) taken were: 69, 75, 83, 58, 95, 72, 86, 88, 77, 79, 90. Find the range & median .

Question No: 45 (Marks: 3)

Find the trends in the data below:



	A	B	C	D	E	F
1						
2						
3						
4						
5		Day	Period	Data	Moving avgerage.	Trend
6		1	Morning	170		
7			Afternoon	140	180	
8			Evening	230	182	
9		2	Morning	176	186	
10			Afternoon	152	187	
11			Evening	233	189	
12		3	Morning	182	192	
13			Afternoon	161	195	
14			Evening	242		
15						

Question No: 46 (Marks: 3)

A random sample of size n is drawn from normal population with mean 6 and S.D

1.2; if $z = 4$, $\bar{x} =$ 8 what is n?

Question No: 47 (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: 48 (Marks: 5)

Find the probability that a man flipping a coin gets the sixth head on the tenth flip.

Question No: 49 (Marks: 5)

Calculate the mean, median and mode for the following set of data 1,2,8,5,4,9,3,4,5,8,6,2,4,5,8,8000.

Question No: 50 (Marks: 10)

A family has 3 boys and 2 girls.
a) Find the number of ways they can sit in a row
b) How many ways are there if the boys and girls are each to sit together?

SOLVED BY CHANDA REHMAN

Fall 2009
MTH302- Business Mathematics & Statistics

Time: 120 min
Marks: 80

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

An arrangement of data by successive time periods is called a

► **Exponential Smoothing**

► Time Series

► **Combination**

► **Permutation**

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

The equation for the intercept of the regression line is $\hat{y} = a + b\hat{x}$ where b is

► Intercept

► Slope

► **Equation**

► **Dependant variable**

In statistics, we use y = a + bx for the equation of a straight line. ... Coefficients a and b. The equation of the least squares regression line is written as: ... The intercept is: a and b is slope

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

The regression equation is the line with slope *a* passing through

► The point $(\hat{x}, \hat{y})$

► **The point (x,y)**

► The point (y'x)

► **The point (y^ (bar) , x^ (bar))**

Formula for Regression: Regression Equation (y) = a + bx Regression Slope ... Example 1: Find the slope coefficient of the line passing through (x^ (bar) , y^ (bar))

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

A statistical measure of the variability of a distribution around its mean is referred to as

► **A probability distribution**

► The standard deviation

► **The expected return**

► **Coefficient of variation**

Instead one estimates the mean and variance of the whole distribution as the ..... a human measurement from its mean follow very closely the Normal Law of Errors, ... deal with the square of the standard deviation as the measure of variability. ... Journal of the American Statistical Association, March 1962, 54ff. ...

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

The repetitive movement around a trend line in a 4- month period is best described by

► **Seasonal variation**

► **Secular trend**

► **Cyclical fluctuation**

► **Irregular variation**

The computer is a powerful tool for doing repetitive work and time consuming ... Next, a third pivot which occurs before the price swing described in the ..... Action is the historical chart movement and reaction is the future price movement. ..... When the price breaks above the 0 - 4 trendline, Andrews' strategy ...

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**

Intercept =a, slope=b y=a+bx

Question No: 7 (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**

3

► **slope = 2.5, intercept = -1.5**

Sol: 2y=3-5x; y=3-5x/2 so y= 1.5-2.5x

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

Three fair dice are thrown. The probability of a total score of 6 is

► **0.032**

► **0.014**

► **0.046**

► **0.005**

Ref=The only way I can do this one is by counting the number of ways we can get the total to be 3, 4, 5, 6, 7, or 8, and then use 216 as denominator (since the three dice can land in 6*6*6 different ways).

1 1 1

1 2 1 three times [the 2 can be in any position]

1 2 2 three times [the 1 can be in any position]

1 1 3 three times

1 1 4 three times

1 2 3 six times

1 1 5 three times

1 2 4 six times

1 3 3 three times

1 1 6 three times

1 2 5 six times

1 3 4 six times

2 2 2 one time

2 2 3 three times

2 2 4 three times

2 3 3 three times

So score 6 is 10 so 10/216=0.046

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

If the probability of an event happening is ¼ then the probability of it not happening is

► **4/3**

► **3/4**

► **2/3**

► **1/3**

Not happening = 1-happening =1-1/4=3/4

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

To avoid distortion of extreme values, a good indicator would be the

► **Mean**

► **Median**

► **Weight-Mean**

► **Mode**

http://highered.mcgraw-hill.com/sites/0073137677/student_view0/chapter22/multiple_choice_quiz.html

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

The weighted mean is a special case of the

► **Mean**

► **Harmonic mean**

► **Mode**

► **Geometric mean**

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

How many words can be formed by re-arranging the letters of the word ASCENT such that A and T occupy the first and last position respectively?

► **5!**

► **4!**

► **6! - 2!**

► **6! / 2!**

http://www.bestsamplequestions.com/cat-questions/quantitative/quantitative-15.html

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

How many arrangements can be made of the letter BUSINESS

► **6723**

► **6725**

► **6720**

► **6721**

http://www.blurtit.com/q6833632.html

ref= Total letters = 8
B=1,U=1,S=3,I=1,N=1,E=1
so 8! / 1!1!3!1!1!1!
=8! / 3!
= 8*7*6*5*4*3! / 3!
= 8*7*6*5*4
=6720 arrangement in BUSINESS

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

In a school, 14% of students take drama and computer classes, and 67% take drama class. What is the probability that a student takes computer class given that the student takes drama class?

► **23%**

► **25%**

► **21%**

► **None of these**

Ref: let A= students take drama class and B=student take computer class then P(B)=67%OR 0.67 AND P(B∩A)=14%OR0.14 FIND P(B/A)

$$\mathrm{P}(\frac{B}{A}) = \frac{P(B \cap A)}{P(A)}$$
$$\mathrm{P}(\frac{B}{A}) = \frac{0.14}{0.67}$$
$$\mathrm{P}(\frac{B}{A}) = 0.21 OR 21\%$$

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.**

In simple linear regression, we also assume that Y and X are linearly related. ... The regression function is not linear. The error terms do not have a constant variance. The model fits all but one or a few outlying observations. ... We will need the following commands for the regression analysis: Statistics ...

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

P(A and B) = P(A) x P(B)

What does this formula represent?

► **(a) The events A and B are Dependent.**

► **(b) The events A and B are Exclusive.**

► **(c) The events A and B are Independent.**

► **(d) Both (a) and (b)**

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

If high or low numbers have a significant effect on a list of numbers, the ---------- may be better than the mean.

► **mode**

► **median**

► **range**

► **quartile**

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

The correlation coefficient provides:

► **a measure of the extent to which changes in one variable cause changes in another variable.**

► **a measure of the strength of the linear association between two categorical variables.**

► **a measure of the strength of the association (not necessarily linear) between two categorical variables.**

► **a measure of the strength of the linear association between two quantitative variables.**

► **a measure of the strength of the linear association between a quantitative variable and a categorical variable.**

Ref: http://www.mega.nu/ampp/rummel/uc.htm
Ref:http://www.brighton-webs.co.uk/statistics/correlation_coefficient.asp
Question No: 19 (Marks: 1) - Please choose one

The moving averages of the Prices 30,45,90,110 are

► **60, 85.45**

► **45, 88.36**

► **55, 81.67**

► **65, 78.45**

Ref:

moving avg
30
45 30+45+90/3=55
90 45+90+110/3=81.67
110

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

Evaluate $[{}^{n}p_{n}]$

► **0**

► **1**

► **n!**

► **(n-1)!**

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

Principal remains constant through out the agreement period in:

► **Compound interest**

► **Annuity**

► **Simple interest**

► **Nominal interest**

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

The intercept of a line passing through origin is

► **zero**

► **does not exists**

► **finite**

► **positive**

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

The Basic salary of an employee is Rs 7,000 and the allowances are Rs 3000. Then the social charges will be ----------.

► **Rs 2030**

► **Rs 2900**

► **Rs 2500**

► **Rs 2150**

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

Weighted average is one type of

► **arithmetic mean .**

► **DSUM function**

► **SUMIF function**

► **all given above choices.**

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

Linear equation: x-y=0 has the solution only if

►

►

►

►

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

After marketing analysis, the Contribution Margin in rupees provided that
variable cost = Rs.400 & expected sale price is Rs.800 is

- **2**
- **1/2**
- **-400**
- **400**

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

If the basic salary of an employee is 8, 000 Rs. allowances are 6000 Rs. and total cost of leaves per year is equal to 28280 Rs. then the cost of leaves as percent of gross salary is

- **29.46%**
- **16.83%**
- **22.23%**
- **28.28%**

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

If A= [a b c] is a matrix then in order to find AB, the number of columns B must have are

► **3**

► **1**

► **2**

► **any non zero number**

See page 87

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

Store A marked down a $ 50 perfume to $ 40 with markdown of $10
The % Markdown is

► **10%**

► **20%**

► **30%**

► **40%**

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

Binomial expansion for $(3x-2y)^0$ is equal to

► **1**

►

►

►

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

For any event if the probability of success is *x*, then the probability of failure is

► **also** *x*

► *1 + x*

► *1 – x*

► *x - 1*

Question No: 33 (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: 34 (Marks: 1) - Please choose one

The range of the correlation coefficient is.....

- **-1 to 0**
- **0 to 1**
- **-1 to 1**
- **None of the above**

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

If b=tan θ is the slope of the regression line Y = a + bX Where

- **θ represents the angle between the line and the vertical axis**
- **θ represents the angle between the line and the horizontal axis**
- **θ represents the angle between the line and the Z- axis**
- **θ represents the angle between the curve and the y- axis**

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

The c2 distribution is ----------

► **Positively skewed**

► **Negatively skewed**

► **Symmetrical**

► **None of these**

Ref: http://www.tutorvista.com/q/a-chi-square-variable-cannot-be-and-the-distributions-are-skewed/q60764_0

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

Is every Linear Programming has solution?

► **true**

► **false**

► **may or may not**

► **none of these**

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

Badri has 9 pairs of dark Blue socks and 9 pairs of Black socks. He keeps them all in a same bag. If he picks out three socks at random what is the probability he will get a matching pair?

► **(2*9C2 * 9C1) / 18C3**

► **(9C2 * 9C1) / 18C3**

► **1**

► **0**

http://www.exammafia.com/studyhelp/questiondetail/navkeys/2-11-329-1139/page/44/VU/MBA_Business_Administration/MTH302/%20Blue%20socks%20and%209%20pairs%20of%20Black%20socks.%20He%20keeps%20them%20all%20in%20a%20same%20bag.%20If

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

Ali, Bilal and Saleem play cricket. Ali's runs are to Bilal's runs and Bilal's runs are to saleem's as 4:3. They get altogether 111 runs. How many runs does Bilal make?

► **56**

► **46**

► **36**

► **26**

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

There are 12 "Yes or No" questions. How many ways can these be answered?

► **1024**

► **2048**

► **4096**

► **144**

http://www.bestsamplequestions.com/cat-questions/quantitative/quantitative-15.html

Question No: 41 (Marks: 2)

If a three digit number is formed from the digits1,2,3,4,5,6, and 7, with no repetitions, tell how many of these three digit numbers will have a number value between 100 and 500.

Question No: 42 (Marks: 2)

Define mean and give its example

Question No: 43 (Marks: 2)

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

Question No: 44 (Marks: 3)

If the difference between two sample means is 11.29, n_1 = 30 and n_2= 50, then find the Standard Error of Difference in Sample Means (STEDM)

Question No: 45 (Marks: 3)

What will be slope 'a'of the regression line Y=ax+b if coefficient of correlation r is 0.5,
S_x = 6 and S_y =9 ?

Question No: 46 (Marks: 3)

A population consists of four observations: {1, 3, 5, 7}. What is the variance? Verify your selected option.
(A) 2
(B) 4
(C) 5
(D) 6

Question No: 47 (Marks: 5)

Consider the histograms below.

Which of the following statements are true? Give reason for your selected option.

I. Both data sets are symmetric.
II. Both data sets have the same range.

(A) I only
(B) II only
(C) I and II
(D) Neither is true.
(E) There is insufficient information to answer this question.

Question No: 48 (Marks: 5)

A pair of dice is thrown. Find the probability of getting a total of either 4 or 6.

Question No: 49 (Marks: 5)

A coin is tossed 10 times. What is the probability that exactly 6 heads will occur?

Question No: 50 (Marks: 10)

(a) In a Mathematics class with 30 students, the teacher wants 2 different students to present the solutions to a problems 3 and 5 on the board. In how many ways can the teacher assign problems? [5]

(b) In a survey, 10 characteristics of a teacher are listed. You are asked to indicate in order of importance which 4 of these characteristics make a good teacher.[5]

How many possible responses are there?