

	<b>FINALTERM EXAMINATION</b> FALL 2007 MTH302 - BUSINESS MATHEMATICS & STATISTICS (Session - 3 )	Marks: 60
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StudentID/LoginID: \_\_\_\_\_

Student Name: \_\_\_\_\_

Center Name/Code: \_\_\_\_\_

Exam Date: Saturday, March 22, 2008

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Please read the following instructions carefully before attempting the paper:

**Duration : March 22, 2008 to March 24, 2008.**

1- Take-home exams allow you to use notes, texts or resource materials while solving the paper. Take-home exams test your ability to find and use information for problem solving and to deliver well-structured and well-presented arguments and solutions.

**All students must submit their paper on or before 24th March 2008. No relaxation in the time for the submission shall be given**

**3- Attempt all the questions on one Excel Worksheet (use only sheet 1) to solve all the questions. More than one sheet is not acceptable. If you solve any question on sheet2, sheet3 and so on, it will not be graded.**

4- Solve the questions on excel worksheet in usual manner i.e. from upward to downward not from left to right.

5- Variables (say x, y, and z) are given in the questions you can assign any value to variable within the range mentioned in the questions.

(e.g. A man sells shirts of Rs x and he gets a profit of 10%. Then find the profit. ( $25000 < x < 30000$ ))

**Solution:** Here we can take x as any value between 25000 to 30000.

Take  $x = 26000$

Profit =  $26000 \times 10/100 = 2600$  Rs    **Answer**

Or

Take  $x = 26500$

Profit =  $26500 \times 10/100 = 2650$  Rs    **Answer )**

6- Attempt all questions. Marks are written adjacent to each question.

7- Do not ask any questions about the contents of this examination from anyone.

If you think that there is something wrong with any of the questions, attempt it to the best of your understanding.

If you think that some essential piece of information is missing, make an appropriate assumption and use it to solve the problem.

8- Write all steps, missing steps may lead to deduction of marks.

**9- you do not solve paper on Excel Sheet, you will get a zero mark. So paper on Word files or any format other than Excel will not be graded.**

For Teacher's use only										
Question Marks	1	2	3	4	5	6				Total

**Question No: 1 ( Marks: 12 )**

- a) A shopkeeper borrowed Rs 20000 from two money lenders, he paid  $X\%$  interest on first loan and  $(X+2)\%$  interest on second loan per annum. Where  $6 \leq X \leq 25$ . After one year if he paid rupees 2500 in total then how much rupees he borrowed from each lender.

**Marks 4**

- b) Find the compounded interest rate percent per annum, if Rs 2000 amounted to Rs 3000 in  $y$  years ;  $y = 2, 3, 4$  (choose any one of them), Interest is considered half –yearly.

**Marks 4**

- c) Take  $x$  number of persons in any three families and divide each family in three categories **No of men, No of women, No of children**, and make their matrix. ( where  $6 \leq X \leq 17$ )

Since the recommended daily requirement of calories for three categories is

**Men = 2500gm, Women = 2000gm, Children = 1800gm,**

And the requirement of protein for three categories is

**Men = 55gm, Women = 45gm, children = 35gm,**

Find the total requirement of calories and protein for each family, by using multiplication function of matrices in Excel.

**Marks 4**

**Question No: 2 ( Marks: 8 )**

- a) Suppose you purchase a car, the cost of car is last six digits of your VU ID, if useful life of the car is 5 years and the value of car at the end of depreciation is 25% of cost of the car then finds depreciation for each year by using Excel function.

**Marks 5**

**b)** Suppose a set of 50 cards numbered with 20 to 70 (Take integers only) , select 10 cards from them and make a data array of integers then find Mean, Median and Mode of the data.

**Marks 3**

**Question No: 3 ( Marks: 10 )**

Take the each batsman score of batting line up of one inning from any cricket match you like in which at least 10 batsmen had made scores, make the data array of scores (Runs), from this data,

**a)** Find standard deviation and Variance.

**Marks**

**5**

**b)** Find all Quartiles and Quartile Deviation.

**Marks**

**5**

**Question No: 4 ( Marks: 12 )**

The National Logistic Cell (NLC) is studying the relationship between the number of bidders on a highway project and the winning (lowest) bid for the project.

i) Sketch the original data on the graph.

Marks 2

ii) Determine is there any degree of association between number of bidders and the winning (lowest) bid? And what type of association is there between the number of bidders and the winning (lowest) bid.

Marks 4

iii) Determine the mathematical equation of the winning (lowest) bid on the number of bidders on a highway project. Then also estimate the amount of the winning bid if there are seven bidders.

Marks 6

<b>X=Number of Bidders</b>	<b>Y=Winning Bid (\$)</b>
19	L(1000000)
19	(L+3)1000000
13	(L+4.7)1000000
20	(L+2.8)1000000
15	(L+2.7)1000000
20	(L+0.5)1000000
17	(L+3.3)1000000
21	(L+5.2)1000000
16	(L+0.5)1000000

16	(L+5.3)1000000
14	(L+3.0)1000000
17	(L+3.8)1000000
17	(L+4.4)1000000
17	(L+3.6)1000000
16	(L+3.1)1000000

Note: Where  $5 < L < 10$

#### Question No: 5 ( Marks: 10 )

A multinational company produces three popular brands of detergents; Brand 1 and Brand 2 are premium while Brand 3 is economy in quality. To make effective decisions in the future company would like to test whether there is an association between the income level of the consumers and choice of brand at 5% level of significance. You are hired for this task to sample  $Z$  consumers in your town using random sampling procedure to cover the entire market using income as the basis of selection. The categories that were used in classifying income level are: Lower, Middle and High. ( $400 < Z < 600$ )

Income	Brands			Total
	Brand1	Brand2	Brand3	
Lower				200
Middle				
Upper				
Total	150			$Z$

#### Question No: 6 ( Marks: 8 )

Azam is taking a multiple choice online test in which each question has 4 choices. If Azam has no knowledge of correct of any of the questions then he decided for a strategy in which he will place 4 slips (marked a, b, c, d ) in the packet. He randomly selects one slip for each question and replaces the slips in the packet. The marking (a, b, c ,d) on the slip will determine his answer. And probability for getting right answer is  $P$ . Also total questions in the exam are  $N$ . ( $0.2 < P < 0.5$  and  $20 < N < 55$ )

What is the chance that

- (a) At least 15 questions are correct.
- (b) Exactly 10 questions are correct.
- (c) At most 6 questions are correct.
- (d) 5 questions are incorrect.

