

MTH302 Business Mathematics and Statistics

Mid Term Examination – Spring 2006 (session I)

Time Allowed: 90 Minutes

Please read the following instructions carefully before attempting any of the questions:

1. Attempt all questions. Marks are written adjacent to each question.
2. Do not ask any questions about the contents of this examination from anyone.
 - a. If you think that there is something wrong with any of the questions, attempt it to the best of your understanding.
 - b. If you believe that some essential piece of information is missing, make an appropriate assumption and use it to solve the problem.
 - c. Write all steps, missing steps may lead to deduction of marks.
 - d. Attempt all the questions on Excel sheet and use only one excel sheet to solve all the questions. More than one sheets are not acceptable
 - e. Solve the questions on excel sheet in usual manner i.e. from upward to downward not from left to right.

****WARNING: Please note that Virtual University takes serious note of unfair means. Anyone found involved in cheating will get an 'F' grade in this course.**

Question No. 1

Marks : 10

a) Calculate IRR after 5 years and 2 years. With a guess of 10%:

Marks 5

Initial cost of a business	-89000
Net income for the first year	34000
Net income for the second year	36000
Net income for the third year	45000

Net income for the fourth year	25000
Net income for the fifth year	36000

b)

Calculate using AMORLINC function, First period depreciation:

Cost = 25000

Date purchased = 05/18/2005.

End of the first period =12/20/2005

Salvage value =1800

Period = 1

Depreciation rate =12%

Marks 5

Question No. 2

Marks : 10

- a) The ratio of milk, chocolate syrup and sugar syrup is 5: 4.5: 3 in a chocolate ice-cream. If you have 12 liters of milk, how much chocolate and sugar syrup is required?

Marks 5

- b) A firm keeps details of component parts used in the make-up of each product (matrix Y) and products (matrix X) as follows:

$$\text{Product Y} = \begin{pmatrix} 2 & 3 \\ 1 & -2 \end{pmatrix} \quad \text{Products X} = \begin{pmatrix} 4 & 5 \\ -1 & 3 \end{pmatrix}$$

Using matrix multiplication, find a matrix that describes the number of component parts used. **Marks 5**

Question No. 3

Marks : 10

If Fixed Cost=2000Rs, Variable Cost= Rs 105, Sale S= Rs 230, Capacity = 350 units. What unit sale will generate NI of Rs. 3200? Note that unit sold is 150.

Question No. 4

Marks : 10

a) The annual rate of interest is 9 %. The period of the loan is 5 years. The present value is 200,000 Rs. Calculate using CUMPRINC Excel function total interest paid in the second Year of payments, for periods 10 through 18. What is the principal paid in a single payment in the first month? **Marks 5**

b) Find the simple interest on 6 months loan of Rs 55000 that has an annual interest rate of 9.21%.

Marks 5

Question No. 5

Marks : 5

A variety of shirts that was bought for Rs 135 was marked up 21% of the selling price in summer season. When in winters, they were marked down 30%. What was the Sale price after the 30% markdown?