

	MIDTERM EXAMINATION FALL 2006 MTH601 - OPERATIONS RESEARCH	Marks: 40 Time: 60min
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StudentID/LoginID: _____

Student Name: _____

Center Name/Code: _____

Exam Date:

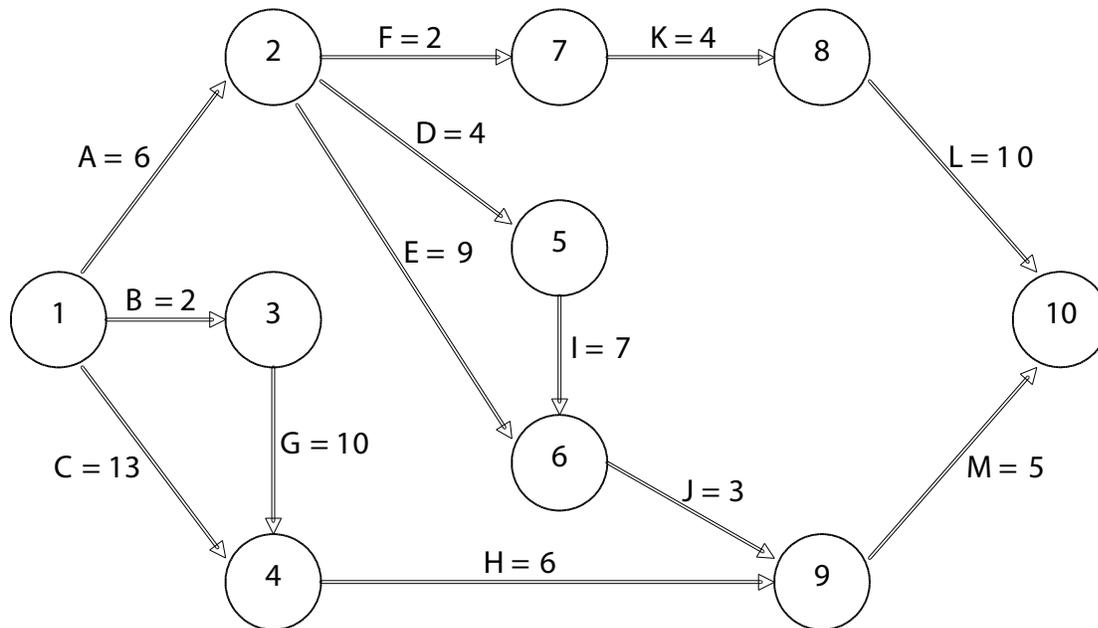
Please read the following instructions carefully before attempting any of the questions:

1. Attempt all questions. Marks are written adjacent to each question
2. Paste the bitmap image for the tables, diagrams etc while solving your questions
3. 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.
4. This examination is closed book, closed notes, closed neighbors.
5. Calculator is allowed

****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.**

For Teacher's use only										
Question Marks	1	2	3	4	5	6	7	8		Total

Question No: 1 (Marks: 10)



Calculate the

- (i). EST, EFT, LST and LFT for each activity.
- (ii). Total Float, Free Float and Independent
- (iii). Critical activities and Critical Path.

Question No: 2 (Marks: 15)

An Automobile factory manufactures a particular type of gear within the factory. This gear used in the final assembly. The particulars of this gear are:

- Demand rate = 14000 units/year
- Manufacturing rate = 35000 units/year
- Set up cost = Rs 500 per set up
- Holding cost = Rs 15/units/year

Determine:

- (a) The optimum manufacturing
- (b) The maximum inventory.
- (c) The time between orders.
- (d) The number of orders/year.
- (e) The time of manufacture.
- (f) The optimum annual cost if the cost of the item per unit is Rs.

Question No: 3 (Marks: 10)

Consider the following problem, Solve graphically

Minimize. $Z = 3X_1 + 2X_2$

Subject to

$$2X_1 + X_2 \geq 10$$

$$-3X_1 + 2X_2 \leq 6$$

$$X_1 + X_2 \geq 6$$

$$X_1, X_2 \geq 0$$

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

Which one is best describe Sectoral

- ▶ Inventory Planning in
- ▶ Improving the layout of a workshop in a
- ▶ Simulation Modeling of the Economy of the
- ▶ None of these.

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

_____ is the most appropriate to situations where we maintain a relative employment levels and utilize the resource at a more constant

- ▶ (a). Resource Leveling Program
- ▶ (b). Resource Allocation Program
- ▶ (c). Both a & b
- ▶ (d). None of these.

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

If the slack time is zero, it means that the project will

- ▶ Delayed
- ▶ Completed on

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

The amount of an activity can be delayed without affecting the early start time of other job, is called

- ▶ Free Slack
- ▶ Independent
- ▶ Total Slack
- ▶ None of these.

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

Let FS = Free Slack, TS = Total Slack, INDS = Independent Slack, then which relation is true

- ▶ (a). $TS \leq FS$
- ▶ (b). $INDS \leq FS$
- ▶ (c). $FS \leq TS$
- ▶ (d). Both (b) & (c)
- ▶ (e). Both (a) & (c)