PRINCE OF SONGKLA UNIVERSITY

FACULTY OF ENGINEERING

Midterm Examination : Semester 2 Academic Year : 2007

Date : December 30, 2007 Time : 13:30-16:30

Subject : 226-439 Logistics & Material Handling System Room : หัวหุ่น

ทุจริตในการสอบ โทษขั้นต่ำปรับตกในรายวิชานั้น และพักการเรียน 1 ภาคการศึกษา

Directions :

- Can take any books to the room.
- Show your solutions and methods on your exam papers.
- **Don't ask any questions to the proctors**. If you think you don't understand any questions, you should make a decision by your own.
- There are 7 problems. You must do all of them.
- Can use any calculators.

Name.....Code.....

Question	Full Points	Taken Points
1	15	
2	10	
3	10	
4	20	
5	15	
6	20	
7	10	
Total	**100**	

Assoc. Prof. Wanida Rattanamanee

Lecturer

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1. (**15 points**) What are the logistics structure and its benefits? Give an example of th ɜ logistics structure?

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2. **(10 points)** Give 5 logistics activities and explain in details.

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3. **(10 points)** What are the material handling activities shown in the Figure 1? Explain the details of each activity.

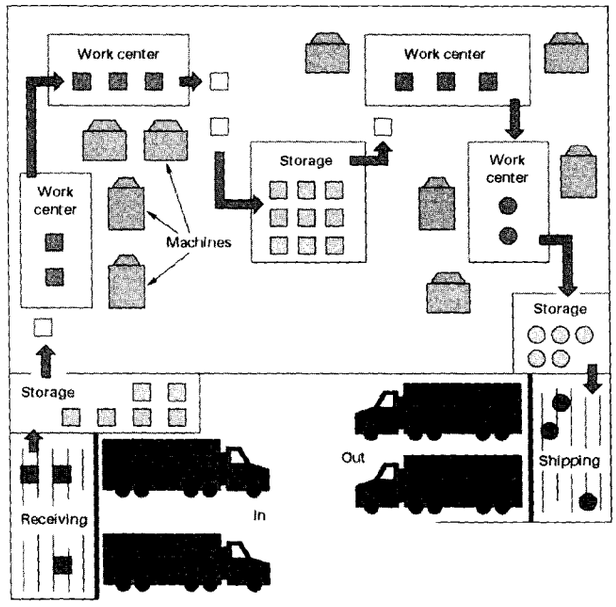

Figure 1. The picture for question 3

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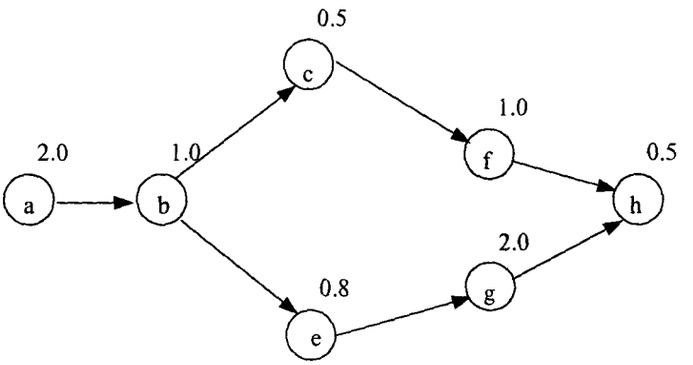
4. **(20 points)** A manager wants to assign tasks to workstations as efficiently as possible, and achieve an hourly output of 60 units. Assume the shop works a 60 minute per hour. There are 8 hours per day. Assign the tasks shown in the accompanying precedence diagram (times are in minutes) to workstations using "in order of most following tasks" rules.



4.1 What is the value of cycle time?

4.2 How many workstations should have in the system?

4.3 Identify the tasks you would assign to each station.

4.4 Determine the percentage of idle time.

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5. **(15 points)** From these following equipment pictures, what do materials, environment and condition appropriate for the equipments?

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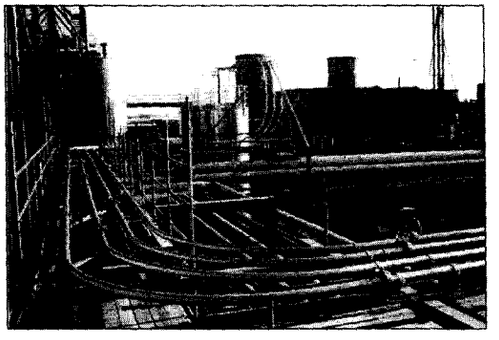

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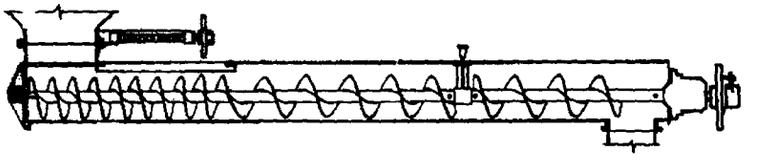

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6. **(20 points)** Determine the placement of department (such as, department AA is located at Room 1, department BB is located at Room 2, etc.) for a newly designed facility that will minimize total transportation costs using the data in the following tables. Assume that reverse distances are the same. The locations are shown in the grid. Determine total distances of your layout.

Room 1	Room 2
Room 3	Room 4

Table 1 Distance between Rooms (feet)

To / **From**	1	2	3	4
1	-	40	40	80
2	40	-	80	40
3	40	80	-	40
4	80	40	40	-

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3. **(10 points)** What are the material handling activities shown in the Figure 1? Explain the details of each activity.

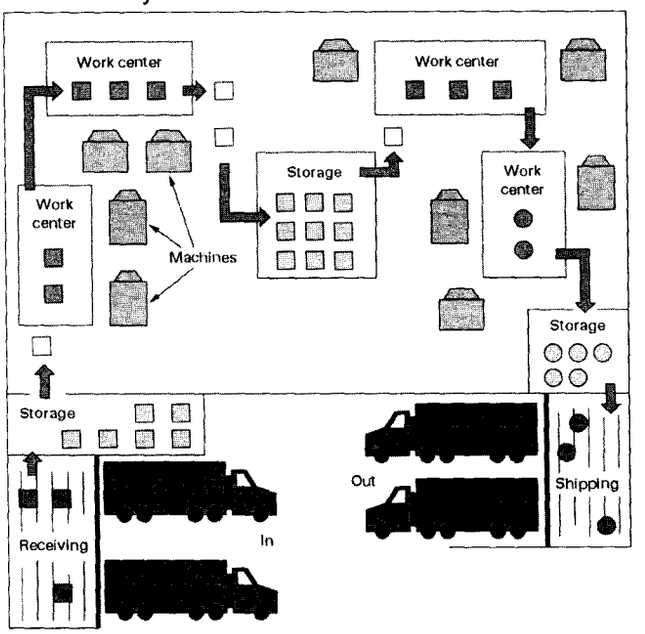

Figure 1. The picture for question 3

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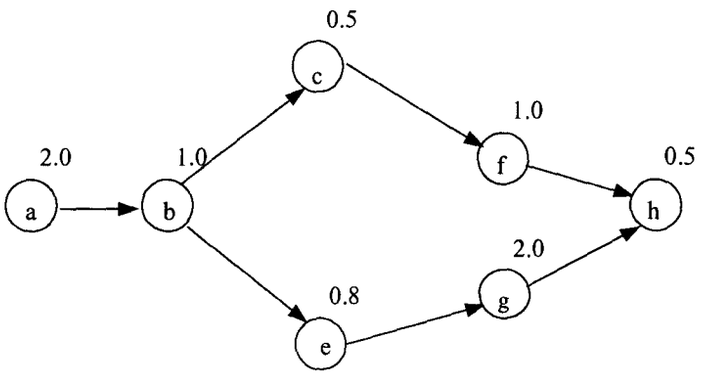

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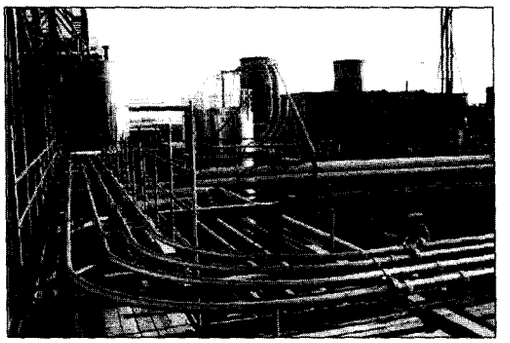

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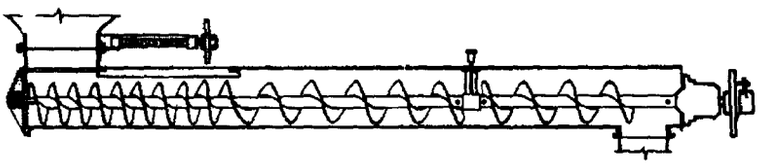

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4	80	40	40	-

Table 2 Number of trips per day between departments and unit cost (Baht per feet) shown in [...]

To / From	AA	BB	CC	DD
AA	-	10 [50]	20 [20]	50[10]
BB		-	40 [60]	10[20]
CC			-	50[20]
DD				-

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7. (10 points) From the case studies in the class, explain the following words that relate to logistics;

7.1 Just in time

7.2 Hub

7.3 EDI

7.4 door to door delivery

7.5 Visibility

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