

Faculty OF Engineering
Prince of Songkla University

Final Examination : Semester 2

Academic year 2005 (2548)

Date : February 26, 2006 (26 กุมภาพันธ์ 2549)

Time : 13:30 – 16:30

Subject : 295-703 Network Modeling

Room : R300

ทฤษฎีในการสอบ โทษชั้นต่ำปรับตกในที่ทฤษฎีนั้น และ
พักการเรียน 1 ภาคการศึกษา

Instructions:

1. Total 6 topics, 25 pages and 100 scores.
2. Do you examination in these papers and return all of them.
3. Write down your number, name, surname, student code in every page.
4. Show all calculation and assumption.
5. All books, notes and calculators are allowed but you are not permitted to borrow anything from the others.

	Scores	Your Scores
1	20	
2	18	
3	10	
4	20	
5	12	
6	20	
Total	100	

Number.....

(From the number in examination list)

Name.....

Surname.....

Student code.....

Year / Department.....

Assistant Professor Yodduang Pannara



Name.....Surname.....Student code.....

1. From Figure 1.1, the number between each node is time (hours). For example, time traveling between node ② and node ⑤ is 4 hours.

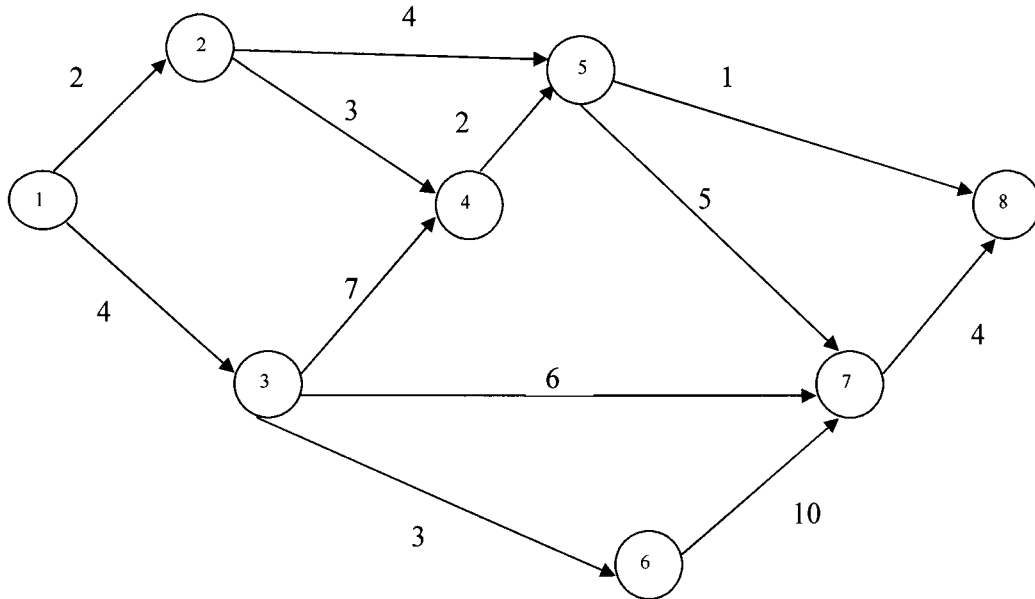


Figure 1.1

Using Network Method to find the distance and paths of

- 1.1. The shortest path level 1 and 2 from node ① to node ⑧ . What are the value and paths ? (10 scores)
- 1.2. The longest path level 1 and 2 from node ① to node ⑧ . What are the value and paths ? (10 scores)

Name.....Surname.....Student code.....

2. From Figure 2.1 , the numbers between each node is distance. For example , the distance between node ② and node ④ is 6 miles.

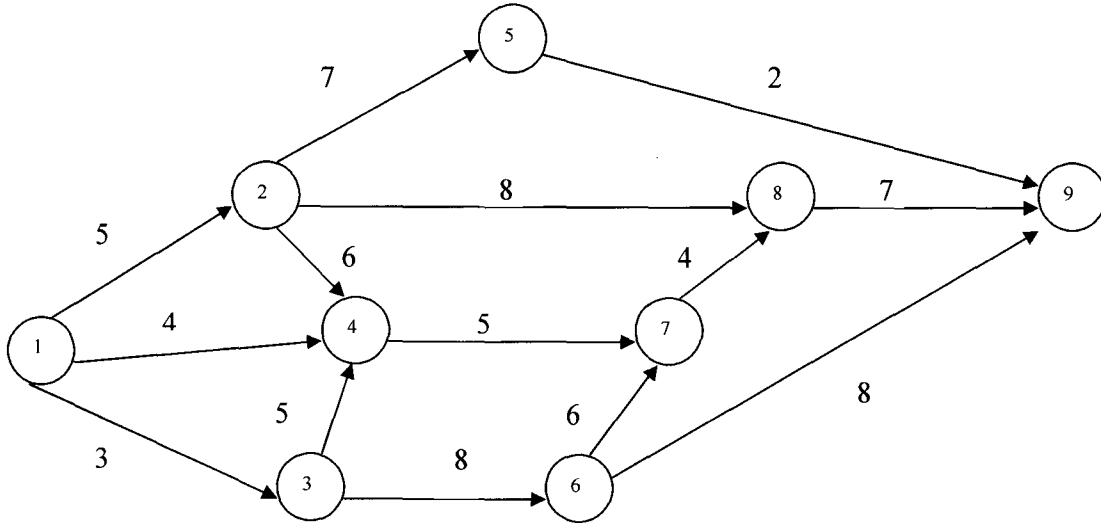


Figure 2.1

Use Dijkstra's Algorithm to find.

- 2.1 The shortest path between node ① and all nodes . What are the value and paths ? (8 scores)
- 2.2 The longest path between node ① and all nodes . What are the value and paths ? (10 scores)

(18 scores)

Name.....Surname.....Student code.....

3. Using labeling procedure.

From Figure 3.1, find the maximum flow between node ① and node ⑪. (8 scores)

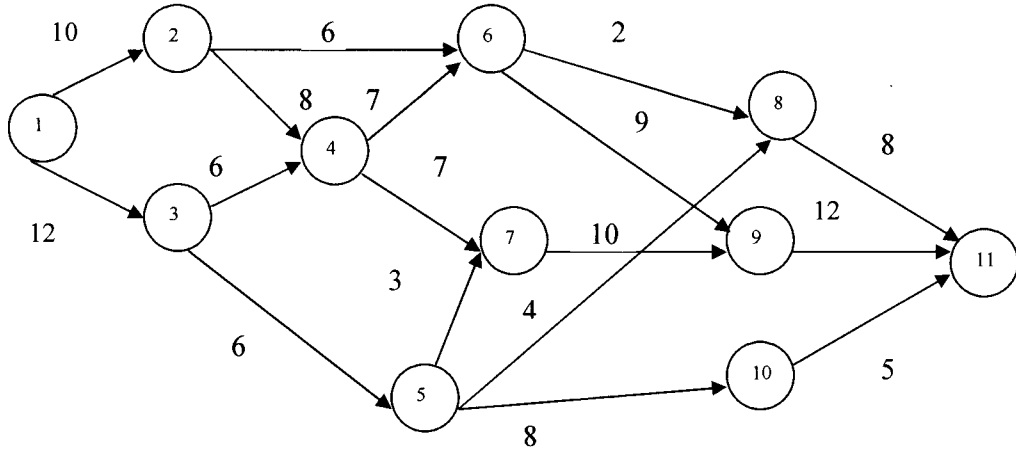
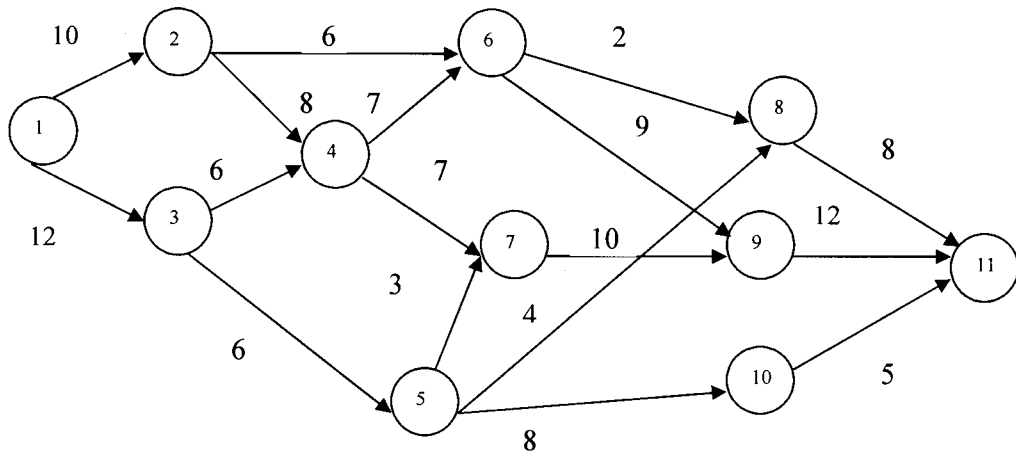


Figure 3.1

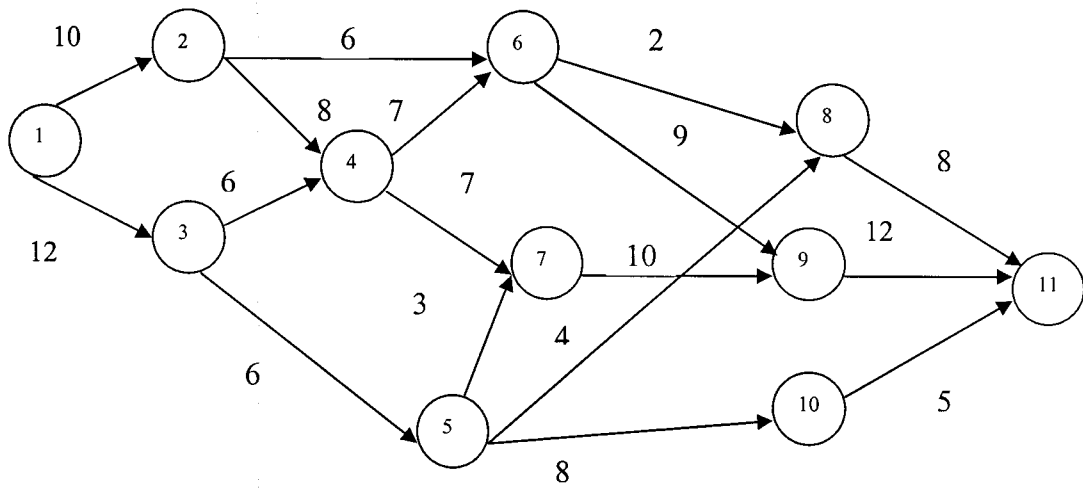
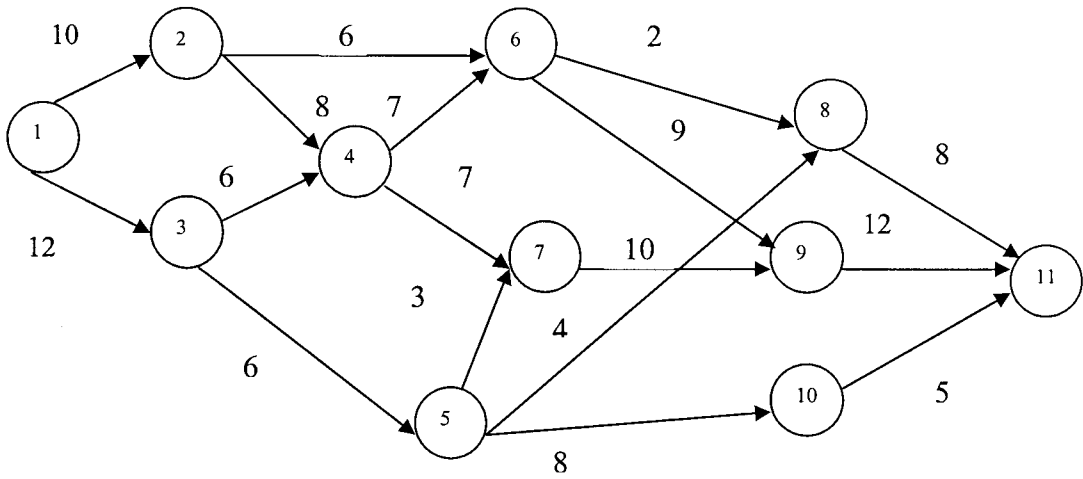
Remark : The meaning of number in each node is capacity flow. (Unit is gallons / hour)

(10 scores)



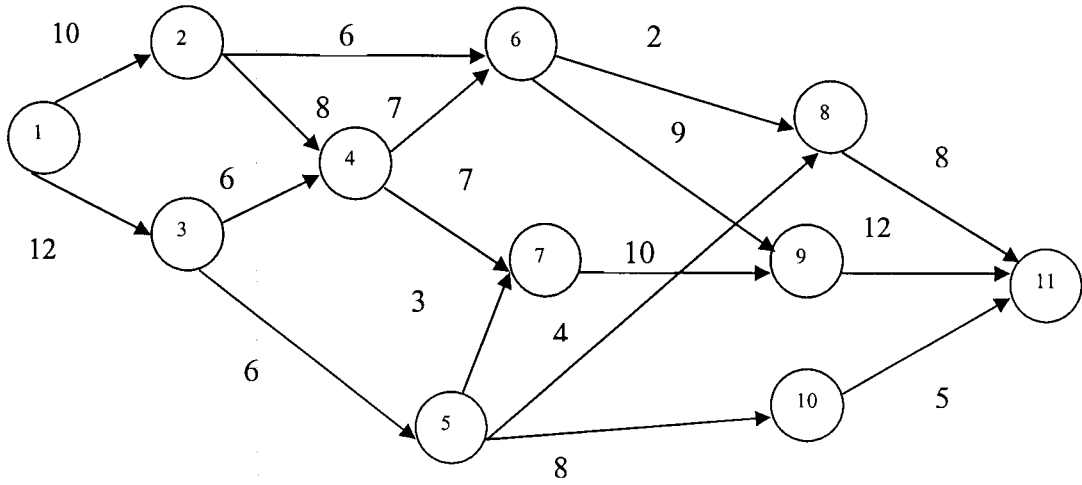
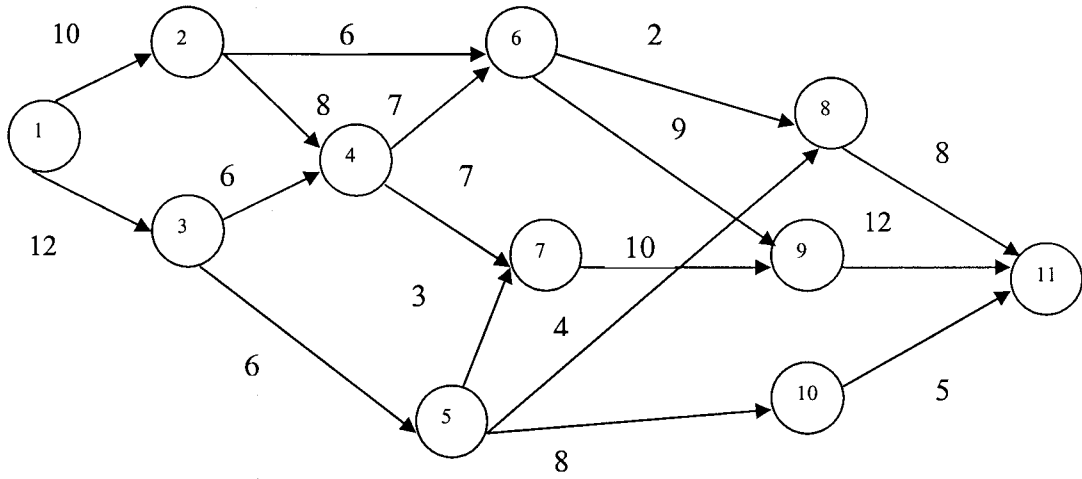
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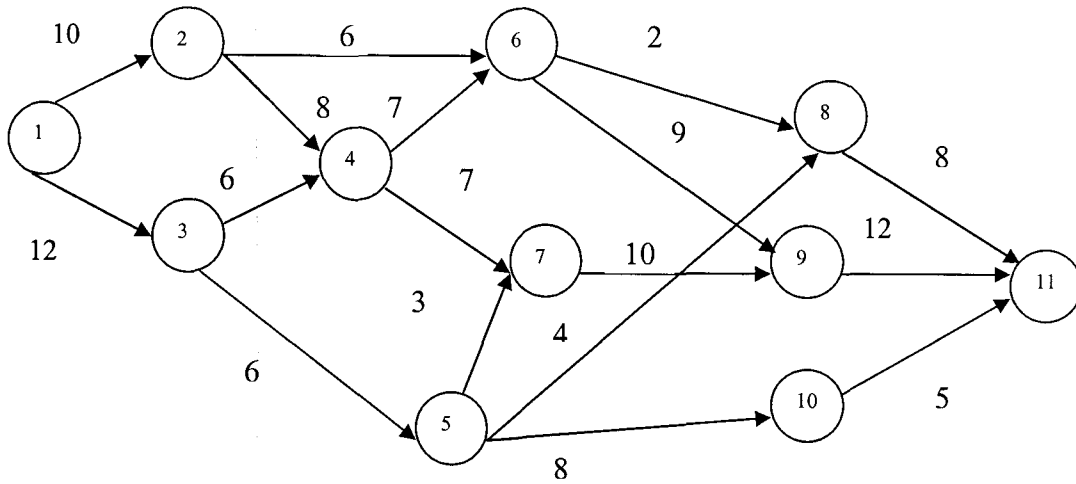
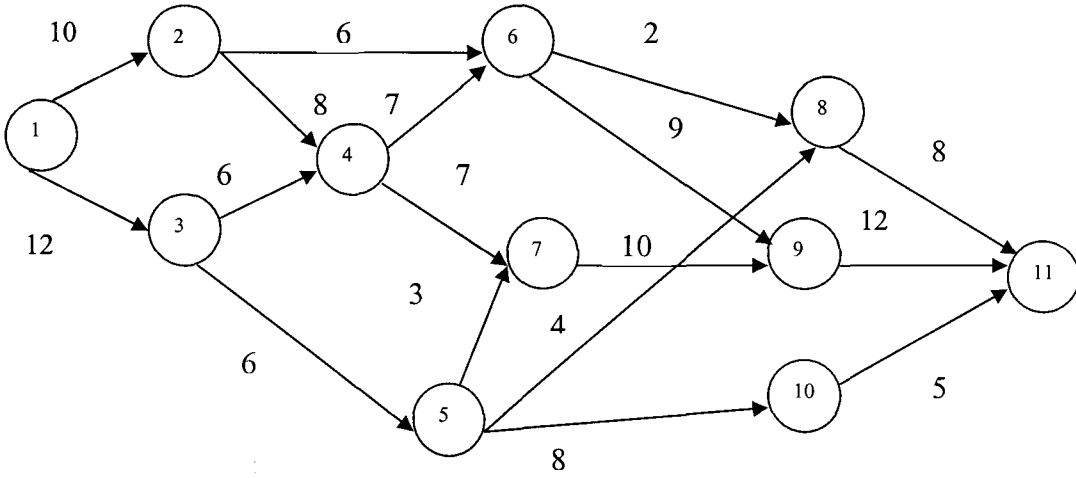
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4. From Flowgraphs is figure 4.1 and 4.2, use Mason's Rule to find relation between

4.1. Node (A) and Node (B) in Figure 4.1 (10 scores)

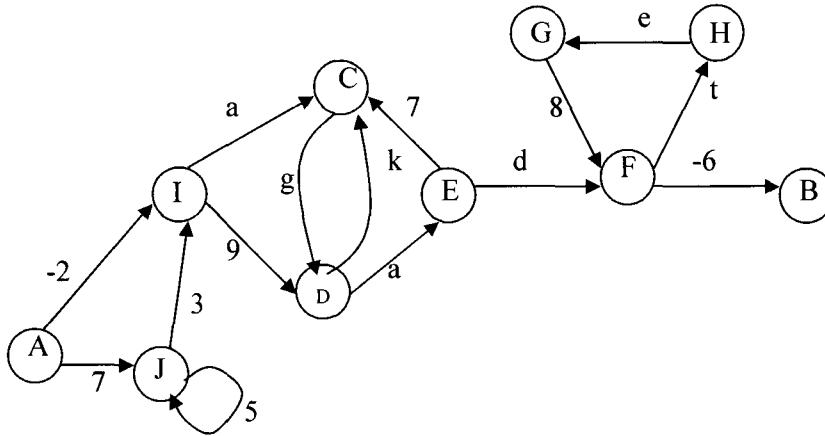


Figure 4.1

4.2. Node (X) and Node (Y) in figure 4.2 (10 scores)

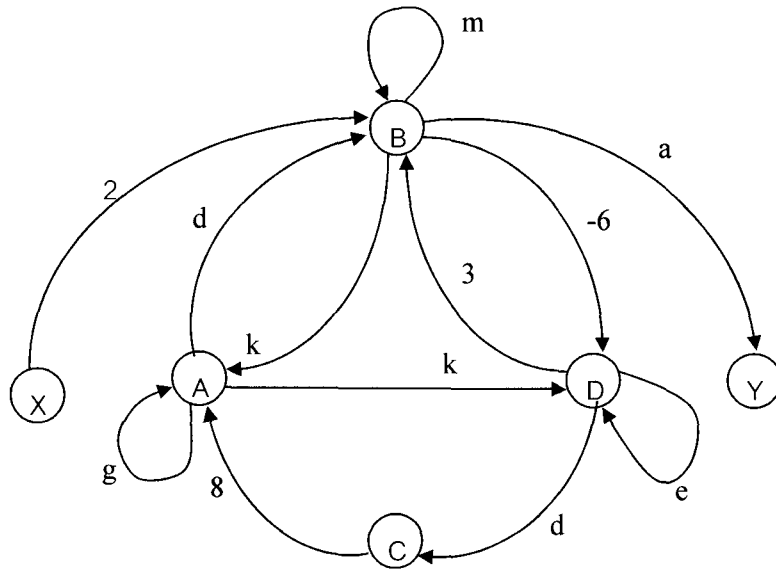


Figure 4.2

Name.....Surname.....Student code.....

5. From Flowgraphs in figure 5.1

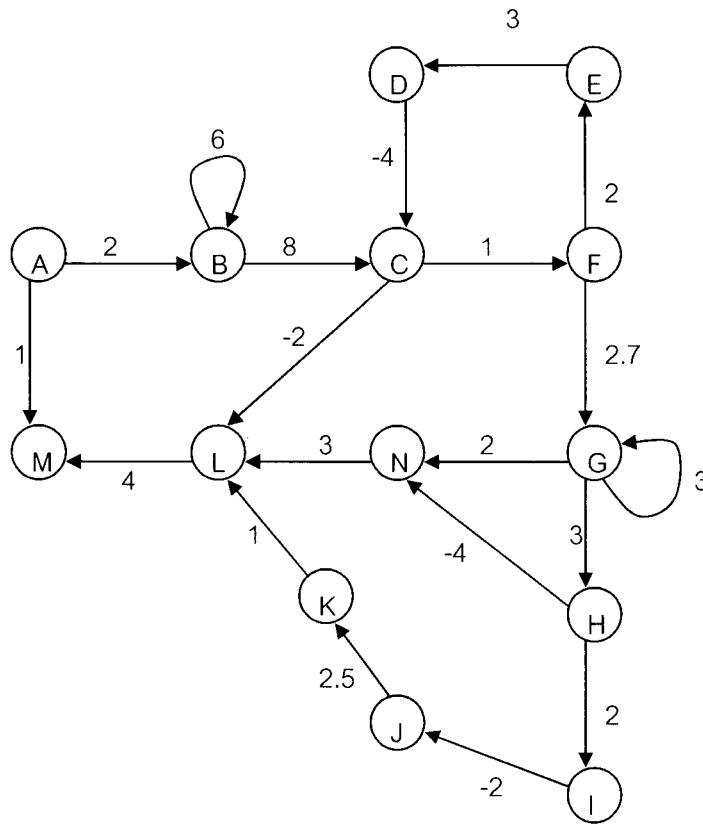


Figure 5.1

Show all calculation that figure 5.1 is correct or not. Explain the reason clearly.

(12 scores)

Name.....Surname.....Student code.....

6. Mr. Ample Rich plans to deposit 73,000 million baht in the British Virgin bank for 1 year. The British Virgin bank pays the interests by many methods.

1. Deposits every two months for one year: the interest is 2% per two months.
2. Deposits every four months for one year: the interest is 4% per four months.
3. Deposits every six months for one year: the interest is 6.1% per six months.
4. Deposits every twelve months: the interest is 12.5% per one year.
5. If Mr. Ample Rich does not follow the rule from methods 1 to 4, he cannot get the interest.

From method 1 to 4, using Flowgraphs to find

- 6.1. The maximum interest. How much will he get at the end of the year ?
- 6.2. The minimum interest. How much will he get at the end of the year ?

(20 scores)

