Tutorial letter 203/2/2016

Software Project Management

INF3708

Semester 1

School of Computing

UNIQUE NUMBER:
685939

Assignment due date: 10 April 2017

Total mark: 100 Marks = 100%

Mark weight: 40%

Questions on Chapter 5 and 6

Question 1 **[10 Marks]**

Software project estimations are carried out at various stages of software development. Name the various stages where estimations can be carried out and discuss the possible reasons why the estimations are carried out at that stage. (10)

Question 2 **[10 Marks]**

2.1 Differentiate between waterfull and prototyping as software project development models. (5)

2.2 As a potential project manager, indicate some of the reasons why you will not recommend waterfall model to your project team as an appropriate project approach? (5)

Question 3 **[20 Marks]**

3.1. COCOMO is a cost estimation model that was built around equation. Provide the equation and describe the variables in Boehm's equation for calculating effort in the use of the COCOMO model. **(5)**

3.2. Five systems with the following estimated lines of code were identified. Identify which can be completed in three years. (15)

System	Line of code	System type
A	17862	Semi-detached mode
B	10762	Semi-detached mode
C	22132	Organic mode
D	7253	Embedded mode
E	6434	Embedded mode

Table 1 for Question 3: System details

COCOM Constants for calculation are made available in table 5.4 of your textbook, page 121.

QUESTION 4 **[39 Marks]**

4.1 CPM and PERT are the two best known project scheduling techniques models. Compare and contrast (i.e the similarity and differences) between CPM and PERT. (10)

4.2 Using the information in table 2 below do the following activities:

Activity	Duration (Working days)	Precedents
A	5	None
B	15	A
C	25	B
D	15	B
E	30	B
F	10	C,D
G	10	E,F
H	5	G

I	5	H

Table 2 for Question 4

4.2.1 Draw a CPM network **(activity-on-arrow diagram**) to illustrate the interaction in table 2. Please indicate **all** the node values on the nodes forward pass (earliest date) and backward pass (latest date). Indicate the critical path with a* on each task in the path you. (15)

4.2.2 Write down the critical path using the letters of the tasks. Calculate and write down the duration of the project. Identify all the remaining other paths and Calculate the duration. (4)

4.2.3. In a table format, calculate the earliest start time, earliest finish, latest start time, latest finish and total float of the tasks for the activity-on-arrow network. (10)

Questions 5 **[21 Mark]**

Table 3 below provides activity duration estimates for the network shown in figure 1. In the PERT network illustrated in the figure below, the **target date** for the completion of the project is **10 weeks.**

	Optimistic (a)	Most Likely (m)	Pessimistic (b)	Expected (te)	Standard Deviation (s)
A	2	4	6.50		
B	6	7	7.50		
c	1	2	5.50		
D	2.50	4.50	5.50		
E	5	6	7		

Table 3 for Question 4

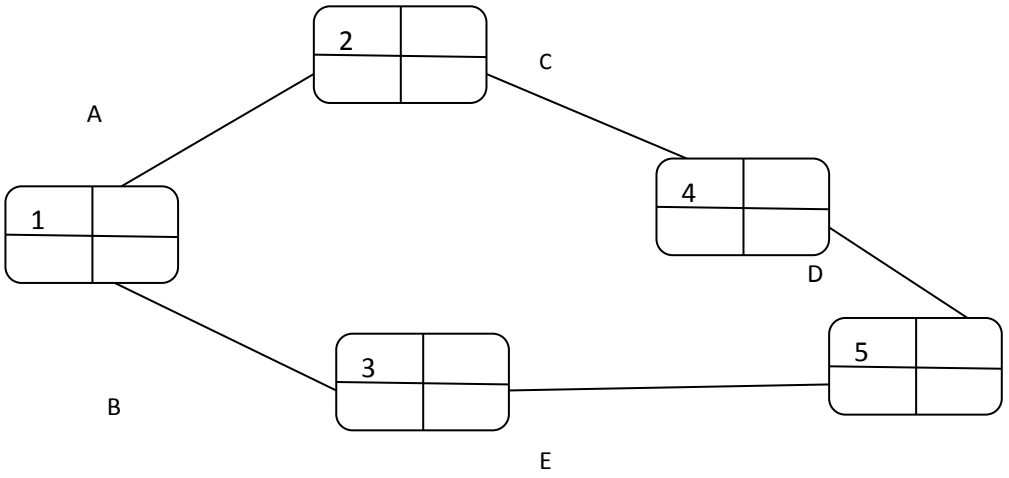

Figure 1 Pert network for Question 4

Use the table above to calculate the following:

5.1 Calculate the Expected activity duration (te) values for all activities and use it to carry out a forward pass through the network depicted on figure 1. (5)

Calculate Standard Deviation (s) for all the activities (5)

Calculate standard deviation (s) for all the tasks of figure. Indicate your (s) values on figure 1 also. Show all your calculations. (4)

5.2 Based on your calculation of (te), what is the project duration? State it in weeks. (2)

5.3 Calculate the Z value on the last event. (3)

5.4 According to Figure 7.8 (p.181) in your textbook, what is the probability of not meeting the target date? (2)