SOFTWARE PROJECT MANAGEMENT
ASSIGNMENT 03
FOR
INF3708

Assignment due date: 19 September 2017
Total mark: 90 Marks = 100%
Mark weight: 40%

ASSIGNMENT 03	
Due date	**19 September 2017**
Study material	**Hughes & Cotterell: Chapters 5, 6 and 7**
Total marks	**90 marks = 100%**
If your assignment is late, please DO NOT PHONE OR E-MAIL asking for an extension but include a not in your assignment stating the reason for the late submission and we will decide whether or not it will b marked. This is a compulsory assignment	

Instructions:

1. Complete this assignment and submit online in a .pdf format by performing the calculations.

2. The following unique number has to be assigned to the assignment:

UNIQUE NUMBER
675016

3. Show all your working (calculations).

4. This assignment consists of 4 questions.

Question 1 **[10 Marks]**

1.1. Software project estimations are very important in software development. They are carried out at various stages of software development. Name and discuss Barry Boehm's various software effort estimations techniques. (7)

1.2. As an emerging project manager working with a team on a new project, you have been mandated to investigate possible problems associated with under-estimating software project effort. Name these possible problems. (3)

Question 2 **[20 Marks]**

2.1. 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. (4)

2.2. Five systems with the following estimated lines of code were identified. Identify which system can be completed in three years. (16)

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 3 **[39 Marks]**

3.1 A project activities must be defined to meet certain criteria if not it has to be redefined. What are the criteria? (4)

3.2 There are three approaches to identifying the activities or tasks that makes up a project. Name and discuss the first two approaches. (6)

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

Activity	Duration (Weeks)	Precedents
A	4	-
B	6	-
C	2	-
D	8	A
E	4	D
F	10	B
G	16	B
H	8	F
I	6	E,H
J	6	C
K	10	G,J

Table 2 for Question 3

3.3.1 Draw a CPM network **(activity-on-node diagram**) to illustrate the interaction in table 2. Please indicate **all** the values on the nodes forward pass (earliest date) and backward pass (latest date). Mark with * all the node of a critical path. (19)

3.3.2 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-node network.

(10)

Questions 4 **[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 **15 weeks.**

	Optimistic (a)	Most Likely (m)	Pessimistic (b)	Expected (te)	Standard Deviation (s)
A	5	6	8		
B	3	4	5		
C	2	3	3		
D	3.5	4	5		
E	1	3	4		
F	8	10	15		
G	2	3	4		
H	2	2	2.5		

Table 3 for Question 4

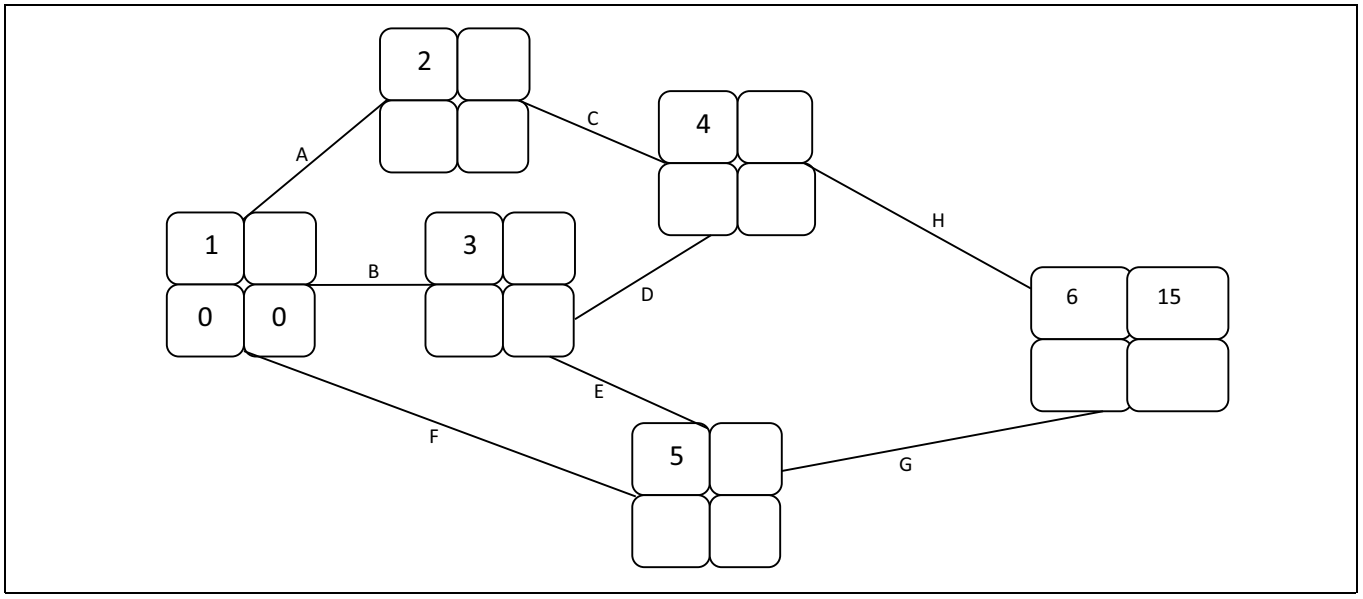

Figure 1 Pert network for Question 4

Use the table above to calculate the following:

4.1 Calculate the Expected activity duration (te) values and use it to carry out a forward pass through the network depicted on figure 1. (16)

Calculate the Standard Deviation (s) and expected activity duration for all the task indicate your (s) values on figure 1 also. Show all your calculations.

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

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