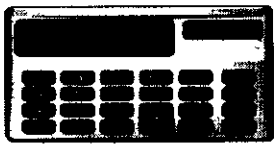
UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS

UNISA university of south africa

INF3708

May/June 2012

SOFTWARE PROJECT MANAGEMENT

Duration 2 Hours

80 Marks

EXAMINATION PANEL AS APPOINTED BY THE DEPARTMENT.

Use of a non-programmable pocket calculator is permissible.

This paper consists of 7 pages.

INSTRUCTIONS

- Non-programmable calculators may be used
- Show all calculations
- Round off all your calculations to two decimal places

GOOD LUCK!!

QUESTION 1 [5]

Select the appropriate answer Write only the appropriate letter next to the question number in your answer book

1 1	Net Present Value takes into consideration the following items A Cash flow, DCF and IRR B Net Profit, discount rate and IRR C Cash flow timing, discount rate and net profit D Net profit, DCF and IRR E None of the above
1 2	The first step in software project planning is to A Determine the budget of the project B Select an organisational model for team work C Determine the project constraints D Establish the objectives and scope of the project E None of the above
1 3	According to Hughes and Cotterell, methods and plans differ in the following way A Methods are normally based on plans B Methods relate to activities in general and plans relate to real activities C Plans are usually based on initial activities D Plans relate to activities in general and methods relate to real activities E A & B
1 4	The spiral model of software development A Ends with the delivery of the software product B Is more chaotic than the incremental model C Includes project risks evaluation during each iteration D All of the above E None of the above
1 5	Which of the following is (are) true regarding project products? A Each project product has an activity(ies) that leads to its accomplishment B All the deliverables are handed over to the client at the end of the project C Deliverables are used to create intermediate products D All of the above E A & B

QUESTION 2 [2]

Briefly explain what a project manager can do when a project will not meet the target date (2)

QUESTION 3 **[22]**

The cash flows of Projects A, B and C is given in the table below (in ZAR, South African rand, R)

Year	Project A	Project B	Project C
0	-R 250,000 00	-R 300,000 00	-R 200,000 00
1	R 25,000 00	R 25,000 00	R 40,000 00
2	R 25,000 00	R 50,000 00	R 40,000 00
3	R 50,000 00	R 75,000 00	R 40,000 00
4	R 50,000 00	R 50,000 00	R 40,000 00
5	R 100,000 00	R 50,000 00	R 80,000 00
6	R 100,000 00	R 75,000 00	R 80,000 00

Table 3 1 *Table of cash flows for Project A B and C*

Based on the above table, answer the following questions

3 1 Calculate the **net profit** of each project (3)

3 2 Based on your answer to Question 3 1 above, identify which project you would select to develop Motivate your answer (1)

3 3 Re-evaluate all the projects using the **shortest payback** method to identify which project you would now select for development, based on the shortest payback period Justify your answer by referring to the projects' payback periods and possible profits in the payback year (4)

3 4 Calculate the **return on investment** *(ROI)* of each of the projects given in Table 3 1 (6)

3 5 Based on your calculation of the ROI of each project in Question 3 4 above, identify which project you would select to develop (1)

3 6 Assume a *discount rate* of 12% Calculate the *Net Present Value (NPV)* of the each project Use the 12% discount rate from Table 3 2 given below (6)

Year	Discount factor at 12%
0	1 000
1	0 8929
2	0 7972
3	0 7118
4	0 6355
5	0 5674
6	0 5066

Table 3 2 *Table for Question 3 6*

3 7 Which is the best project to develop and why? (1)

QUESTION 4 [13]

4 1 Consider the following list of tasks with dependencies and estimated durations reflected in table 4 1

Activity	Precedents	Estimated duration (days)
A	None	5
B	A	9
C	None	4
D	A	2
E	C	5
F	B	6

Table 4 1 *Table for Question 4 1*

Use the naming convention for nodes as used in Hughes & Cotterel, which is based on the British Standard BS 4335, to draw the activity-on-node network (precedence network) diagram for the tasks as given in table 4 1 Indicate **all** the values on the nodes Indicate the critical path with an * on each task in the path (13)

QUESTION 5 [13]

In the PERT network illustrated in the figure below, the target date for the completion of the project is 15 weeks

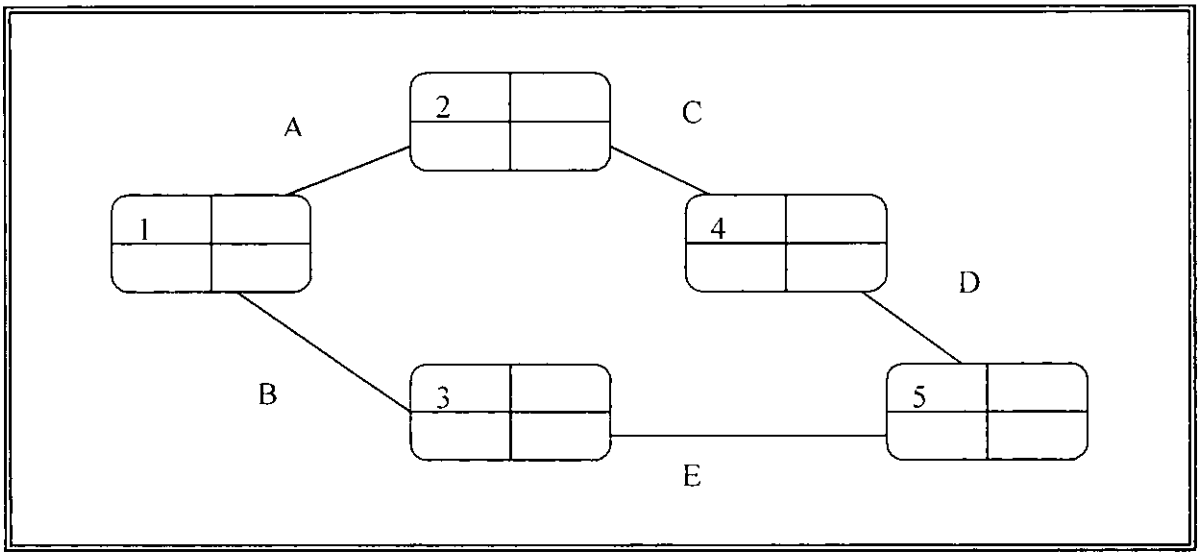


Diagram 5 1 *Pert network diagram for Question 5*

Activity	Optimistic (a)	Most Likely (m)	Pessimistic (b)	Expected (t_e)	Standard Deviation (s)
A	4	6	8		
B	1	4	5		
C	2	3	5		
D	2	5	6		
E	3	4	5		

Table: *Values for the PERT network for Question 5*

Use the table and the diagram above to calculate the following:

5.1 Calculate the Expected (t_e) values and Standard Deviation (s) and indicate the (t_e) and (s) values on the diagram. (10)

5.2 Calculate the Z value on the last event. (2)

5.3 According to Figure 5.3 below, what is the probability of not meeting the target date? (1)

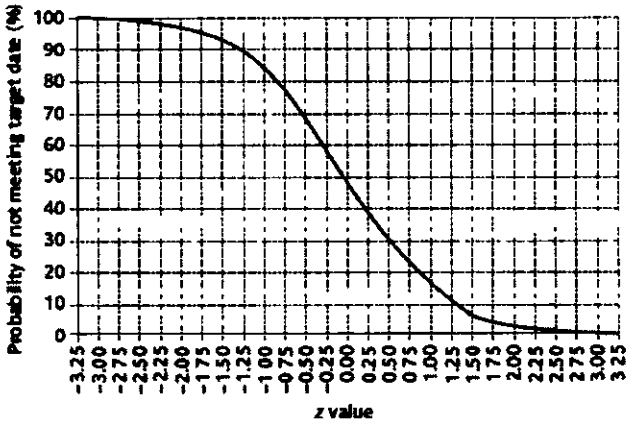


Figure 5.3: *for question 5 3*

QUESTION 6 [10]

6 1 Below is partial precedence network for an IT project Specific individuals have not been allocated to activities yet, but all the activities will be carried out by 'standard' analysts or software developers

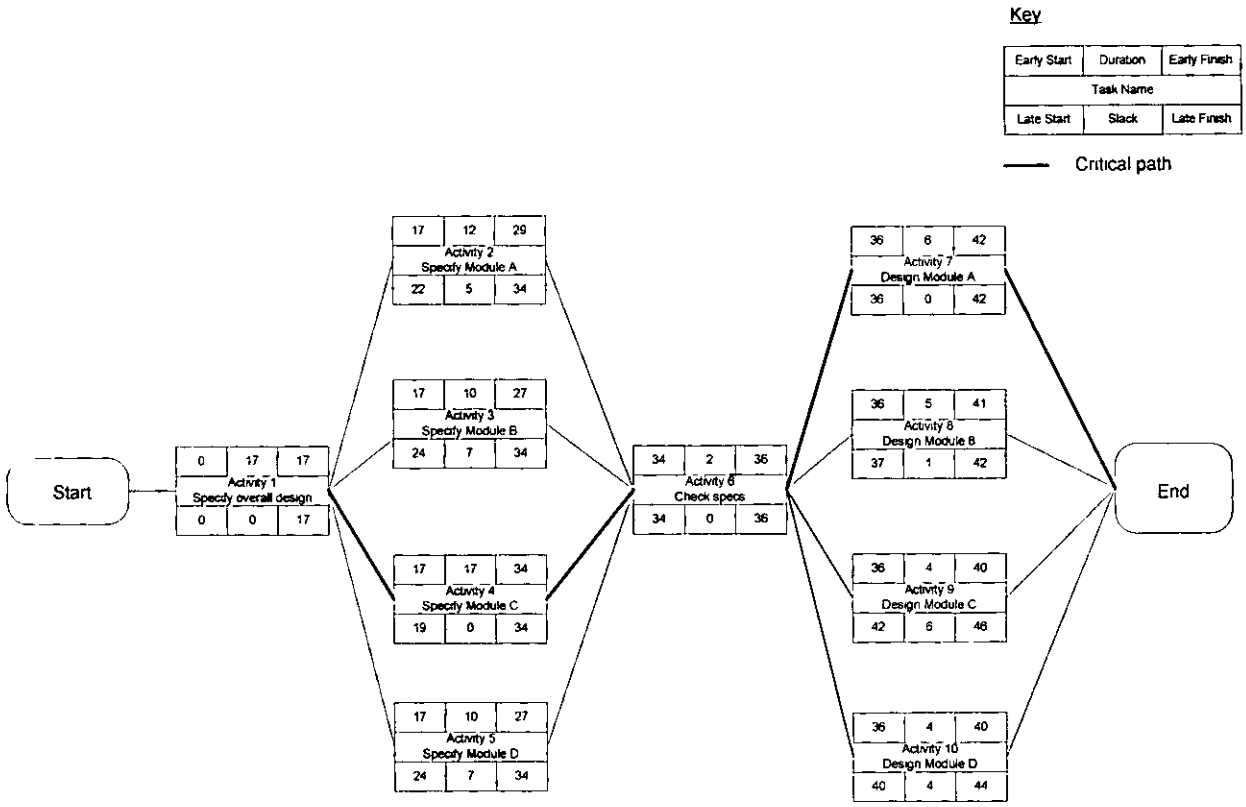


Figure 6 *Precedence Network diagram for question 6*

Draw up a Gantt chart for the information given in the precedence network above (10)

QUESTION 7 [15]

7 1 The staff cost of the Phumzani Project is shown below Nomsa is the project leader of the Phumzani project and will spend 10 extra days on the project to plan and carry out the post project review The project is scheduled to be finished in 26 days An amount of R350 per day is charged by the Phumzani team for overhead costs Busi will work on the project every day, Samuel and Amy will work only half of the days and Juan will work only 10 days

Staff member	Daily cost
Nomsa	R400
Samuel	R200
Juan	R300
Busi	R400
Amy	R300

Table for Question 7

Calculate the total cost for the Phumzani project (14)

7 2 Identify one other type of cost that could also be relevant, and that were not taken into account in 7 1 (1)

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