GOOD LUCK!!

QUESTION 1   [10]

2.1 Differentiate between the following:

   (a)   Budgeted cost of work schedule (BCWS) and Budget cost of
         work performed (BCWP)   (5)
   (b)   Schedule variance (SV), Time variance (TV) and Cost variance
         (CV).   (5)

QUESTION 3   [14]

Table 1 shows a cash flow projection for three different projects: **Project 1, 2
and 3** (in South Africa Rand R). As a software project manager, you will be
allowed to implement one project.

Year	Project 1	Project 2	Project 3
0	-R100 000	-R150 000	-R120 000
1	+R7 000	+R25 000	+R4 000
2	+R20 000	+R15 000	+R30 000
3	+R10 000	+R23 000	+R40 000
4	+R50 000	+R31 000	+R50 000
5	+R30 000	+R60 000	+R10 000

Table 1: Projects Cash Flow

Based on the information provided in **Table 1** answer questions 3.1 to 3.5
below:

3.1   Calculate the net profit for the three projects.   (3)

3.2   Using the information on Table 1, calculate the Return On Investment
      (ROI) for the three projects.   (3)

3.3   Calculate the payback period for each of the three projects in Table 1.
                                                                   (6)

3.4   Which one of the three projects would you consider for implementation?
      Explain why?   (2)

QUESTION 4   [19]

4.1   Given a discount rate of 10% in Table 2 below; calculate the Net Present
      Value (NPV) for **project 1, 2 and 3**. Use the cash flow in Table 1 above.
      Please show all your caculations.   (6)

Year	10% Discount rate
1	0.9091
2	0.8264
3	0.7513
4	0.6830
5	0.6209

Table 2: 10% discount rate

4.2   Base on your calculation of the project Net Present Value (NPV), would you still recommend the project you selected for development in question 3.4? Motivate your answer.   (3)

4.3   As a project manager, you need to be aware that an over-estimating may cause a project to take longer than it would otherwise. Use Parkinson's law and Brook's law to Elaborate more on this.   (4)

4.4   **Discuss at least three** estimation techniques you can use to estimate software project.   (6)

QUESTION 5   [23]

Consider the following activities with their precedents and durations listed in Table 3. The activity durations are in days.

Activity	Duration	Predecessor
A	2	-
B	3	-
C	4	-
D	5	A
E	7	B
F	5	B
G	7	C
H	7	D,E
I	3	G
J	4	F,H,I

Table 3: Activity precedents and their durations

5.1   Draw a network diagram <u>Activity-on-Arrow (AOA)</u>. Indicate the activity duration, the event number, earliest date, latest date and float on each node by completing both a forward and backward pass.   (10)

(N:B) 5 marks will be deducted from student for not drawing the current activity diagram.

5.2   Why is important to identify a critical path in an activity network?   (2)

       Indicate the critical path and calculate its total duration.   (2)

       What two things did you notice with the critical path of this project?   (4)

5.3   What is the the Longest time it will take to complete this project? Indicate the path   (3)

5.4   Identify all of the other paths on the network diagram and indicate their durations?   (2)

QUESTION 6   [18]

6.1 With the information table below table was given (without resource column) and you were asked to Draw activity-on-node network.

Activity	Description	Resources	Duration (working days)	Precedents
A	Requirement analysis	System analyst	5	None
B	System design	System Designer	9	A
C	Programming	Programmer	4	None
D	Hardware installation	Hardware Installer	2	A
E	System testing	Tester	5	C
F	Training and Support	Trainer and supporters	6	B

Table 4: Activity precedents, their durations and resource

One of the final results of resource allocation is "Resource Schedule" which shows the dates each resource will be required and the level of the requirement. Table 6 has activity description and resources that are needed per activity. Use the information on table 6 to draw **activity-on-node network,** include all the node calculates. Using a bar chart, schedule the resources of this project to the activities plan drawn (i.e map out the resources indicated in column 3 of table 6 to the activity plan you draw). Other thing being equal, assume all resources are required only once and each activity has been scheduled to start at its earliest start date.   (9)

6.2 Why is it important to prioritize activities in projects?   (2)

6.3 Discuss at least **two** ways of prioritizing activities.   (4)

6.4 In allocating individuals to tasks, a number of factors need to be taken into consideration. Discuss at least **three** factors you will consider when allocating the resources listed on table 6 to project activities.   (3)

QUESTION 7   [6]

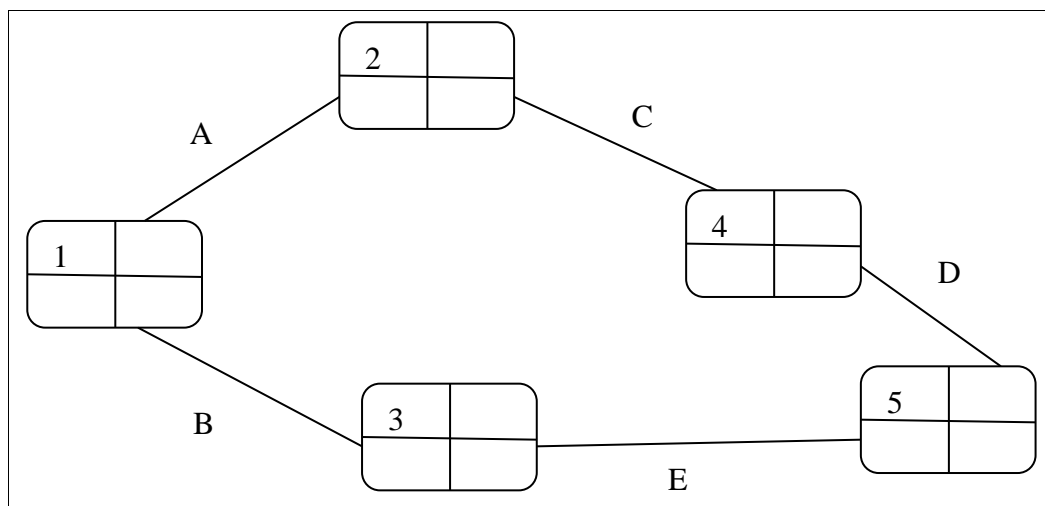In the PERT network illustrated in figure 1 below, the targeted date for the completion of the project is 11 weeks.

Figure 1

	Optimistic (a)	Most likely (M)	Pessismistic (b)	Expected (t_e)	Standard deviation (s)
A	3	5	6		
B	2	3	5		
C	1	4	8		
D	4	2	6		
E	5	4	5		

Table 5

Using Table 5 and Figure 1 above answer the following questions:

7.1   Calculate the expected (t_e) values for all the activities in Table 6.   (3)

7.2   Calculte standard deviation (s) for all the activities in Table 6.   (3)

[TURN OVER]