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Amrita School of Engineering, Coimbatore

B.Tech. Degree Examinations – April/May 2018

Eighth Semester

Computer Science and Engineering

CSE482 Software Project Management

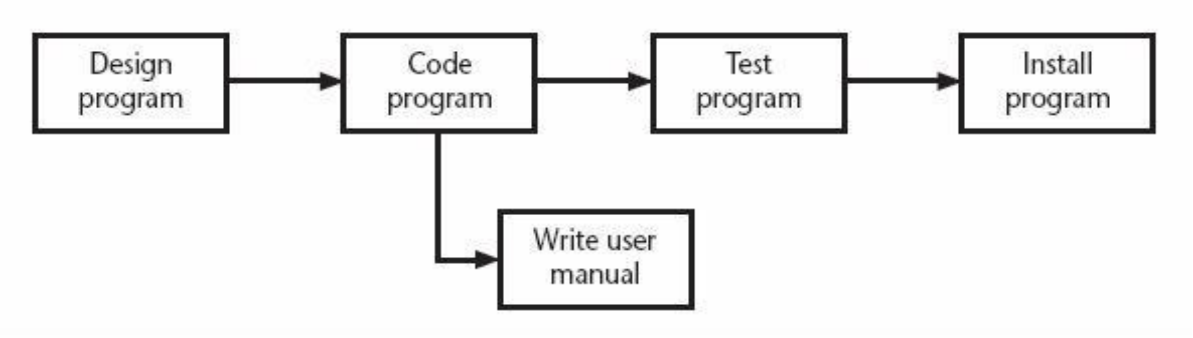
[Time: Three hours Maximum: 100 Marks]

Answer all questions

PART A (10 x 3 =30 Marks)

1. The creation of a project schedule comprises of four main stages which are given below:
   A. Resource allocation
   B. Creating an ideal activity plan (plan of when each activity would ideally be undertaken were resources not a constraint)
   C. Schedule production (publish the project schedule indicating the planned start and
      i. completion dates and a resource requirements statement for each activity)
   D. Activity risk analysis (is aimed at identifying potential problems)

   Order the stages A, B, C, and D in the correct sequence.
2. Discuss about pros and cons of evolutionary and throw away prototypes.
3. A cash receipt in the IOE maintenance accounts system accesses 1 entity type invoice. The data elements that are input are: Sl.no, Date and Amount. The output is 2 reports. Calculate the unadjusted Fp count for Function point mark II.
4. Identify the exact error in AON network and correct it



5. Differentiate between Deliverables, Intermediate Products, Milestones and Check Points.
6. What is portrayed in a Product Flow Diagram (PFD)? Draw a simple PFD for a generic software development task.
7. What are the four drivers of risk? What is Risk Reduction Leverage?
8. List the seven categories of resources. What would be the end result of resource allocation?
9. Model a typical project control cycle showing the continual processes of monitoring and steps to include remedial actions in case of deviations from actual plan.
10. Calculate Value / Cost ratio (V/C) to an Management Information System for storage, retrieval and various generation aspects.

PART B **(7 x 10 =70 Marks)**

11. a. Calculate Net profit, ROI and NPV for project at 18% discount rate. What conclusion do we give after calculation of NPV?. Use the table below**.** **(5 Marks)**

Year	Cash flow
0	-5,000,00
1	100,000
2	100,000
3	100,000
4	400,000
5	500,000

b. Help the Prime company Ltd to take a decision on extending business/replace existing MIS. They have analyzed the following**:** **(5 Marks)**

- Extend
  - ✓ NPV 15K if no expansion
  - ✓ If market expands they will lose revenue of 50 K
- Replace
  - ✓ If market expands NPV 5.5 lakhs
  - ✓ If sales do not increase will lose revenue in terms of NPV of 40K
- Company also estimates likelihood of market expanding significantly is 30%

You are asked to present your analysis as decision tree and conclude the final decision based on the calculation of the expected value for both the decisions.

12. a. Identify data group movements and COSMIC functional size units for the following scenario:
Invoices should be made as part of the financial settlement of week 40. These invoices relate tocustomer product deliveries in week 40. For the invoice all deliveries of week 40 will be collected.
The invoice is kept in data storage to write off customer's payments. The customer receives a hard copy of the invoice. **(6 Marks)**

b. Elaborate all the software effort estimation techniques. **(4 Marks)**

13. Consider the following list of tasks with dependencies and estimated durations reflected in the table.

Task	Precedents	Duration (weeks)
A	None	6
B	None	5
C	B	12
D	B	9
E	A	28
F	A	7
G	D	11
H	F,G	6

a) Draw a CPM network (activity-on-arrow diagram) to illustrate the interaction of activities. **(6 Marks)**

b) Write down the critical path using the letters of the tasks and calculate and write own the duration of the project. Write down the other paths and their durations. **(4 Marks)**

14. Refer to the PERT activity timetable in the following table and answer the questions that follow.

Activity	Optimistic(a)	Most Likely(m)	Pessimistic(b)
A	4	5	6
B	2	3	4
C	3	4	5
D	5	6	7

i. Calculate the Expected times (te) for activities A, B, C and D.

ii. Calculate the Standard Deviation (s) for activities A, B, C and D.

iii. Use Figure 1 below as well as the (te) and (s) values calculated in Questions (a) and (b) above and calculate the values for (i), (ii), (iii) and (iv) in Figure 1.

iv. Use the calculations done in Questions (a), (b) and (c) above to determine the Z value for the fourth task.

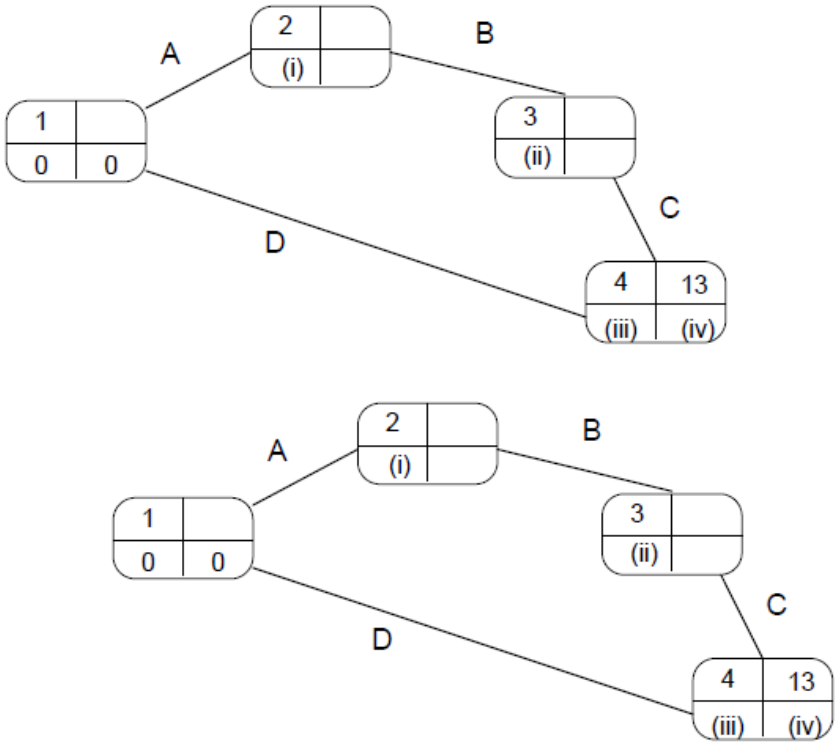


Figure 1

v. What is the probability of not meeting the target date?

(Each subdivision carries 2 Marks: 10 Marks)

15. Suppose you have a budgeted cost of a project at $900,000. The project is to be completed in 9 months. After a month, you have completed 10 percent of the project at a total expense of $100,000. The planned completion should have been 15 percent. Calculate the Cost Variance, Schedule Variance, Cost Performance Index and Schedule Performance Index. Interpret the values to assess the progress of the project.

(Each subdivision carries 2 Marks: 10 Marks)

16. Draw and explain the usage of **(Each subdivision carries 5 Marks: 20 Marks)**

    i. Gantt chart
    ii. Slip chart
    iii. Ball chart and
    iv. Timeline chart

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