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Amrita School of Engineering, Coimbatore

B.Tech. Degree Examinations – March/April 2019

Eighth Semester

Computer Science and Engineering

15CSE411 Software Project Management

[Time: Three hours   Maximum: 100 Marks]

Answer all questions

CO	Course Outcomes
CO01	To understand the basic concepts, terminologies and issues of software project management
CO02	To apply appropriate methods and models for the development of solutions
CO03	To analyze the cost-benefits of calculations so as to optimize the selection strategy
CO04	To evaluate methods, models and technologies towards achieving project success
CO05	To design and evaluate network planning models with criticality

PART A

1. As the manager of a software project you are to develop a product for business application. If you estimate the effort required for completion of the project to be 50 person-months, can you complete the project by employing 50 engineers for a period of one month? Justify your answer.

(3)[CO02]

2. Estimate the effort required to build software for a bank that produces 20 screens, 10 documents and requires 100 components. Assume that the complexity is medium (3, 5, 4) and productivity factor is very high (50).Use the application composition model of COCOMO II with object points. (3)[CO02]

3. It is opined that, sufficient care must be taken while allocating the right staff to critical activities. What factors would you take in to account, while allocating individual to specific task

(3)[CO01]

4. Identify the stakeholders of E-commerce. (3)[CO01]

5. List out the common methods of assigning earned value in software projects. (3)[CO01]

6. Draw the WBS of a computer (3)[CO01]

7. Say in a project, significant product reduction loss is estimated as 80K with 2% probability. Calculate the risk exposure factor for the risk specified above and justify the result for using it in your project compared to other risks. (3)[CO02]

8. Display the following using ball chart (3)[CO02]

Owner	Activity	Start date	End date
A	Code Module J	1/4/2014	15/5/2014
B	Code Module K	1/4/2014	25/5/2014
C	Testing	26/5/2014	5/6/2014

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9. State the difference between formal and informal structures in organization.   (3)[CO01]

10. What is the motivation behind Herzberg's two-factor theory and Maslow's hierarchy of needs to manage people in software environments?   (3)[CO01]

PART B

11. The cash flows of Projects 1, 2, 3 and 4 are given in the table below .Use this information to calculate the Net Profit, the Return on Investment (ROI), the payback period and the Net Present Value at 18% for each of these projects. Suggest the best project for investment.   (10)[CO03]

Year	Project 1	Project 2	Project 3
0	-25,000	-30,000	-20,000
1	2,500	2,500	4,000
2	2,500	5,000	4,000
3	15,000	10,000	4,000
4	5,000	5,000	4,000
5	10,000	7,000	8,000
6	10,000	7,500	8,000

12. a. A new project with estimated 400 KLOC embedded system has to be developed. Project manager hires developers of low quality (1.29) but a lot of experience in programming language (.95). Calculate the Effort and Productivity.   (6)[CO04]

b. Consider a project with the following functional units: 50 user inputs, 40 user outputs, 35 user enquiries, 6 user files, 4 external interfaces. Assume all complexity adjustment factors and weighting factors are average (4, 5,4,10 and 7).Compute the function points for the project. Suppose that program needs 70 LOC per FP. Find out the size of complete project.   (4)

13. Consider the list of activities with precedents and estimated durations (in weeks) in the table below: (10)[CO05]

Task	Precedents	Duration(in weeks)
A	--	4
B	--	5
C	--	6
D	A	8
E	A,B	3
F	C	7
G	F	11
H	D	4
I	H	8
J	H	9
K	E,F	4
M	K,G,I,J	6

i)   Draw the precedence network for the list of tasks in the table above to demonstrate the communication of activities.
ii)   Spot the Critical path and its duration

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14. a. Discuss on various aspects in regard with selecting the most appropriate process model.

(5)[CO02]

  b. Explain about Extreme programming (XP) in detail. (5)

15. a. Bring out the difference between timeline and slip chart with a neat diagram. (5)[CO04]

  b. Present your final year project's any one activity using RAG reporting technique. (5)

16. Describe what the results of each calculation mean to you as a project manager. (10)[CO04]
    Given: PV = $500,000 EV = $350,000 AC = $550,000 BAC = $1,200,000

17. Given below is the PERT network estimates for duration of each task. (10)[CO05]

precedent	Activity	a	m	b
-	a	2	7	8
-	b	1	5	6
a	c	3	4	4
b	d	6	3	2
c,d	e	2	3	7

   a. Calculate the single expected duration for all the activities. (2)
   b. Calculate the Standard deviation for all activities. (2)
   c. Represent PERT chart to calculate only expected dates of all events using the above information. (3)
   d. Use the calculation to find Z value for the last activity by week 15. (2)
   e. Find the probability of not achieving last activity by week 15. (1)

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