B.E. COMPUTER SCIENCE AND ENGG. 3rd YR 2nd SEM. Supplementary Exam.-2023
SOFTWARE ENGINEERING

Time: Three Hours   Full Marks:100

Answer any 5   5×20 = 100

1. (a) Compute the function point value for a project with the following information domain characteristics:

    (i) No. of user inputs = 32
    (ii) No. of user outputs = 60
    (iii) No. of user inquiries = 24
    (iv) No. of files = 4
    (v) No. of external interfaces = 2

Assume that all Value Adjustment Factors are average.

(b) What are Value Adjustment factors ? How are they estimated ?   14+6

2. (a) What are the characteristics of the Organic, Semidetached, and Embedded modes of COCOMO ? Give representative examples.

(b) What are the Basic, Intermediate, and Detailed levels of COCOMO ? Explain in brief.

(c) A software project developed in organic mode involves code size of 33,200 LOC. Estimate the effort required, duration of the project, number of people required, and the productivity of the project.   8+7+5

3. What is the basic idea of the Prototyping Model ? What are the steps in developing a prototype? What are the advantages and disadvantages of this life-cycle model ?   4+6+10

4. What is the format of the "Specific Requirements" Section of a Software Requirements Specification (SRS) ? Assume that all functional requirements are specified first.   20

5(a) What is a Risk Categorization Table ? Explain with an example.
  (b) Explain the methodology for Risk Management using Risk Change Report, Risk Response Report, and Risk Categorization Table.   6+14

6. (a) What are coupling and cohesion in the context of Software Quality ?
  (b) What are the CK Metrics for Object-Oriented Software ? Explain in brief.   10+10

7. Under what circumstances is it advisable to use the Rapid Application Development Model (RAD) ? What are its strengths and weaknesses ?   6+14

8. A project consists of the following jobs:

Job	Initial node, Final Node	Estimated Duration
a	(1,2)	2
b	(2,3)	3
c	(2,4)	5
d	(3,5)	4
e	(3,6)	1
f	(4,6)	6
g	(4,7)	2
h	(5,8)	8
i	(6,8)	7
j	(7,8)	4

(a) Draw a precedence diagram.
(b) Calculate the earliest and latest start and finish times for each job.
(c) Which jobs are critical ?   8+10+2

9. Consider the following job-log for a project:

Task-Id	Estimated Effort(programmer-days)	Actual Effort so far	Estimated completion Date	Actual Completion Date
1	5	10	25 January 2022	01 February 2022
2	25	20	15 February 2022	15 February 2022
3	120	80	15 May 2022	
4	40	50	15 April 2022	01 April 2022
5	60	50	01 July 2022	
6	80	70	01 September 2022	

On the date 01 April 2022,
   (a) what is the BCWP(Budgeted Cost of Work Produced)?
   (b) what is the BAC(Budget at Completion), i.e the estimate of the total effort of the project ?
   (c) what is the earned value (in per cent)?
   (d) what is the BCWS (Budgeted Cost of Work Scheduled)?
   (e) what is the Schedule Variance ?
   (f) what is the ACWP (Actual Cost of Work Produced) ?
   (g) what is the Cost Variance ?   3+2+3+4+2+4+2

--------END----------