

**B.C.A. DEGREE END SEMESTER EXAMINATION - OCTOBER 2024****SEMESTER 3 : MOBILE APPLICATIONS AND CLOUD TECHNOLOGY****COURSE : 19U3CRBCA8 : SOFTWARE ENGINEERING**

*(For Regular 2023 Admission and Improvement/Supplementary 2022/2021/2020/2019/2018/2017/2016 Admissions)*

Time : Three Hours

Max. Marks: 75

**PART A****Answer All (1 mark each)**

1. List some of the factors to be considered during system modeling.
2. What is SCM?
3. What is software testing?
4. Define project scheduling.
5. List out the software life cycle models.
6. What do you mean by nonfunctional requirements?
7. Define risk monitoring.
8. Which are the criteria used to measure the functional independence of modules?
9. What do you mean by Modular decomposability?
10. Define data dictionary.

**(1 x 10 = 10)****PART B****Answer any 8 (2 marks each)**

11. Outline the system engineering hierarchy.
12. What do you mean by risk mitigation?
13. How do you describe the software interface?
14. Why software architecture is important in the software process?
15. Summarise the software project scheduling principles.
16. Why throw-away prototype should not be considered as a final system?
17. Distinguish between verification and validation.
18. What are the attributes of good testing?
19. What are the approaches to integration testing?
20. What does Level-0-DFD represent?

**(2 x 8 = 16)****PART C****Answer any 5 (5 marks each)**

21. List the five criteria that define an effective modular system.
22. Explore different feasibility studies to be conducted in the analysis.
23. The spiral model is one of the most effective life cycle models. Why?

24. Identify variables and create define and use (DU) path.

```
Program:
1.   i = 1;
2.   z = 1, k=2;
3.   while (z < 20 and k < 10 )
4.   {
5.       if (i < 2)
6.       {
7.           i = 2;
8.           for (j = 1; j < i; j++)
9.           {
10.              k = j;
11.              if (j < i)
12.              {
13.                  j = i;
14.                  k = j;
15.              }
16.          }
17.      }
18.      i = j;
19.  }
```

25. Elaborate on the Software configuration management process.  
26. List the task regions in the spiral model.  
27. Discuss the project plan structure.

(5 x 5 = 25)

#### PART D

#### Answer any 2 (12 marks each)

28. Explain iterative waterfall model and spiral model for the software life cycle with examples.  
29. Explain different requirement elicitation techniques with its merits and demerits.  
30. Discuss in detail about  
a) software evolution  
b) maintenance process  
31. A bank hosts a program on its website that determines the maximum amount for which a credit card can be issued to a user. The maximum limit is based on user annual income and age. Following is the criteria

Age	Annual Income	Credit Card Max Limit
31<=Age<=40	3 lacs <= Income <= 5 lacs	Rs. 50,000
31<=Age<=40	5 lacs <= Income <= 10 lacs	Rs. 75,000
31<=Age<=40	10 lacs <= Income <= 15 lacs	Rs. 1 lac
31<=Age<=40	Income > 5 lacs	Rs. 2 lac
40<=Age<=50	3 lacs <= Income <= 5 lacs	Rs. 75,000
40<=Age<=50	5 lacs <= Income <= 10 lacs	Rs. 1 lac
40<=Age<=50	10 lacs <= Income <= 15 lacs	Rs. 2 lac
40<=Age<=50	Income > 5 lacs	Rs. 3 lac

- a) Derive the valid and invalid sub-domains for the input variables . Justify any specific choice you make for the sub-domains.
- b) Write down the sample testcases(Atleast 15).

**(12 x 2 = 24)**