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Question Paper Code: R4805

B.E./B.Tech. DEGREE EXAMINATION, APRIL / MAY 2025

Fourth Semester

Computer science and Engineering

R21UIT405– Software Engineering Methodology

(Regulations R2021)

(Common to IT & CSE(CI) Engineering branches)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. List out the challenges in software Engineering. CO1- U
2. During a sprint review, users provide feedback that a recent feature is not intuitive. What should the Agile team do next? CO1-App
3. Infer the concept of software requirement specification. CO1- U
4. Stakeholders provide incomplete or unclear requirements, leading to misunderstandings and rework during the development phase. How do avoid the problem above case. CO2-App
5. Explain software design process. CO1- U
6. Outline on FURPS attributes with respect to design quality. CO1- U
7. Define software testing CO1- U
8. A website requires users to set a password with a length between 8 and 16 characters. Using Boundary Value Analysis (BVA), identify at least five test cases to check the password length validation. CO2-App
9. Define software project estimation. CO1- U
10. A team is developing a mobile banking app and identifies a risk that users might abandon transactions if the app takes too long to process payments. How should the team apply risk identification techniques to address this issue? CO2-App

PART – B (5 x 16= 80 Marks)

11. (a) Explain in details about the software development life cycle. CO1- U (16)
Or
(b) Explain the software specialized process models. CO1- U (16)

12. (a) Write the functional requirements under Mental Health Care Patient Management System (MHC-PMS), used to maintain information about patients receiving treatment for mental health problems: CO2- App (16)
- i. A user shall be able to search the appointments lists for all clinics.
 - ii. The system shall generate each day, for each clinic, a list of patients who are expected to attend appointments that day.
 - iii. Each staff member using the system shall be uniquely identified by his or her eight-digit employee number.
- Or
- (b) An unattended petrol (gas) pump system that includes a credit card reader. The customer swipes the card through the reader and then specifies the amount of fuel required. The fuel is delivered and the customer's account debited. Write the Software Requirement Specification for the above case. CO2- App (16)
13. (a) Illustrate various software design concepts with suitable example. CO1- U (16)
- Or
- (b) Illustrate various architectural designs with suitable example. CO1- U (16)
14. (a) Compare the cyclomatic complexity values of biggest among two numbers and three numbers and explain which one would be easier to test and why. Analyze and explain in detail. CO3- Ana (16)
- Or
- (b) A banking application allows customers to transfer money between accounts. The minimum transfer amount allowed is Rs 100, and the maximum is Rs 10,000 per transaction. Identify the boundary values using Boundary Value Analysis (BVA). Analyze and justify why testing these boundary values is essential for ensuring software reliability. CO3- Ana (16)
15. (a) Explain the various software project components estimation with suitable example. CO1- U (16)
- Or
- (b) Explain the necessity of risk management in a project. CO1- U (16)