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IT301 Enrol. No. .....

[ET]

END SEMESTER EXAMINATIONS NOVEMBER – DECEMBER 2024

SOFTWARE ENGINEERING

Time : 3 Hrs. *Maximum Marks : 60*

Note: ***Attempt questions from all sections as directed. Use of Scientific calculator is allowed.***

SECTION – A (24 Marks)

Attempt any **four** *questions out of* **five**. *Each question carries* **06** *marks.*

1. (a) As you move outward along the spiral process flow, what can you say about the software that is being developed or maintained? (3)

   (b) What is meant by requirements engineering? Suggest strategies for requirements gathering, requirements modeling, requirements management, and requirements validation. (3)

P.T.O.

2. (a) Elaborate the rationale behind assessing technical feasibility, operational feasibility and economic feasibility of a software product. (3)

(b) How can you identify software risks? (3)

3. (a) Give examples to differentiate between behavioural and non behavioural requirements. (3)

(b) Elaborate the key differences between coupling and cohesion. Which one is more preferable and why? (3)

4. (a) Consider the following code and find its cyclomatic complexity- (3)

```
If (Condition 1)
Statement 1
Else
Statement 2
If (Condition 2)
Statement 3
Else
Statement 4
```

(b) Give key differences between black box and white box testing approaches. (3)

5. (a) Explain salient features of Putnam Staffing Model. (3)

(b) What is an abstract class? How is it useful in object oriented design? (3)

SECTION – B (20 Marks)

Attempt any **two** *questions out of* **three.**
Each question carries **10** *marks.*

6. (a) Discuss all stages of Capability Maturity Model with the help of a neat diagram. (5)

(b) A project size of 200 KLOC is to be developed. Software development team has average experience on similar type of projects. The project schedule is not very tight. Calculate the effort, development time, average staff size and productivity of the project. (5)

7. (a) 'If a project is behind the schedule, increasing the number of programmers can reduce the time gap'. Do you agree with this statement? Give reasons. (5)

(b) Define Reverse Engineering. Is it more economical than re-engineering? (5)

8. (a) How does Function Point Analysis help in determining software cost, time, effort and staffing. (5)

(b) Differentiate between top down and bottom up approach of testing modular programs. (5)

SECTION – C (16 Marks)

(Compulsory)

9. (a) Explain the following quality attributes and discuss ways to measure each of them – (8)

Functionality, Usability, Performance, Supportability

(b) Consider a website development project in which user and the webmaster are the actors. The site user wants to search for documents, browse documents, view events, download and preview documents. The webmaster uploads documents, posts new events to the homepage and adds a user. Draw a use case diagram for this project. How will you show multiplicity of actors in use case diagram? Also explain structure of class diagram for this project. (8)