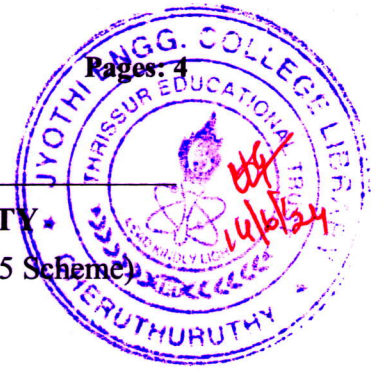


Reg No.: _____

Name: _____



APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Sixth Semester B.Tech Degree, (S, FE) Examination May 2024 (2015 Scheme)

Course Code: CS308

Course Name: SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|---|--|-----|
| 1 | Outline the benefits of using a Prototyping model for Software development | (3) |
| 2 | Elaborate on the maintenance aspect of software engineering. | (3) |
| 3 | What is QFD ? Explain. | (3) |
| 4 | How is the Capability Maturity Model (CMM) used to evaluate and improve the maturity of software development processes within an organization? | (3) |

PART B

Answer any two full questions, each carries 9 marks.

- | | | |
|---|---|-----|
| 5 | a) Describe the spiral model with the help of a neat sketch. | (6) |
| | b) As you move outward along the process flow path of the spiral model, what can you say about the software that is being developed or maintained? | (3) |
| 6 | What are the main steps involved in the requirement engineering process, and how do they contribute to the development of high-quality software products? | (9) |

- 7 A hospital has decided to implement a new electronic health record (EHR) (9) system to improve patient care. Develop the following documents that will provide a comprehensive overview of the EHR system:
- i. Problem statement
 - ii. Context diagram
 - iii. Use case diagram
 - iv. Entity-relationship diagram (ERD)

PART C

Answer all questions, each carries 3 marks.

- 8 What is the difference between the basic COCOMO model and the intermediate COCOMO model? (3)
- 9 What are the fundamental design principles that software developers should follow to create effective and maintainable software products? (3)
- 10 What are coding standards and why are they important? (3)
- 11 How does white box testing differ from other types of software testing? (3)

PART D

Answer any two full questions, each carries 9 marks.

- 12 a) An air traffic control project of size 500 KLOC is to be developed. Software project team has very little experience on similar projects and the project schedule is also tight. Calculate the effort, development time, average staff size and productivity of the project. (4)
- b) What is the importance of cohesion and coupling in software design, and how can these principles be applied to create more modular and flexible software systems? (5)
- 13 a) Explain the concept of abstraction in design? (3)

- b) Consider the program given below, construct the flow graph and calculate the cyclomatic complexity (6)

```

{ int i, j, k;
  for (i=0 ; i<=N ; i++)
    p[i] = 1;
  for (i=2 ; i<=N ; i++)
  {
    k = p[i]; j=1;
    while (a[p[j-1]] > a[k] {
      p[j] = p[j-1];
      j--;
    }
    p[j]=k;
  }

```

- 14 Explain any three types of Black box testing. (9)

PART E

Answer any four full questions, each carries 10 marks.

- 15 a) Explain the process of Maintenance. (6)
- b) Describe Boehm's model for Maintenance. (4)
- 16 a) What is risk projection? What are the risk projection activities performed by the project planner along with other managers and technical staff? (5)
- b) Explain different categories of risk. (5)
- 17 a) What are the 4 P's of project management, and how can they be leveraged to ensure project success? (8)
- b) Explain Democratic Decentralised team organization and Controlled Decentralised team organization (2)

- 18 a) What are the basic principles of project scheduling? (6)
- b) Explain Putnam-Norden-Rayleigh (PNR) curve with a neat graph showing effort versus development time. (4)
- 19 Describe Software Configuration Management (SCM) and different SCM tasks performed. (10)
- 20 a) Explain the architecture of CASE environment. (5)
- b) What are the different types of CASE tools? (5)
