

Reg. No. :

Question Paper Code : 10506

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

First Semester

Computer Science and Engineering

CP 5154 — ADVANCED SOFTWARE ENGINEERING

(Common to M.E. Computer Science and Engineering (With Specialization in Networks)/M.E. Multimedia Technology/M.E. Software Engineering)

(Regulation 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Outline the difference between a throw away prototype and an evolutionary prototype.
2. Define software configuration management.
3. What is an object? Give example.
4. Define petrinets.
5. What is the use of pipes and filters?
6. Define coupling.
7. Outline the difference between white box testing and black box testing.
8. Define debugging.
9. What is continuous integration?
10. Name the areas where DevOps adoption is preferred.

PART B — (5 × 13 = 65 marks)

11. (a) Compare the spiral software development life cycle model with the waterfall life cycle model. (13)

Or

- (b) Present an outline of the activities involved in software project management. (13)

12. (a) Prepare a software requirements specification document for a "Banking System". (13)

Or

- (b) (i) Model a Class diagram for the following scenario:

Manju consultancy service is organized in to departments. Each department has employees working in it. The attributes of department include department code and department name. The attributes of employee include employee number, name, date of birth, gender, date of joining, designation, basic pay and skill. Each department has a manager managing it. There are supervisors in each department who supervise a set of employees. Each department controls a number of projects. A project is controlled only by one department. The attributes of project include project code and project name. An employee can work on any number of distinct projects on a day. The date an employee worked, the in time and out time has to be kept track. (7)

- (ii) Model a use case model for the following scenario :

The goal is to process different types of credit applications at a bank. The credit applications include those for home equity loans, home mortgage loans, auto loans, and credit cards. From the bank's perspective, the customers are home owners, home buyers, auto buyers, and credit card applicants. To process any type of loan or credit card application, the bank needs to check the applicant's credit history, based on a report from the credit bureau. For the first two types of loans, the bank summons an assessor to assess the property value before making a decision. (6)

13. (a) Define cohesion. Outline coincidental cohesion, logical cohesion, temporal cohesion and functional cohesion with an example. (13)

Or

- (b) What is a design pattern? Outline the model-view-controller architectural design pattern with an example. (13)

14. (a) What is integration testing? Outline the types of integration testing with an example. (13)

Or

- (b) Outline equivalence class partitioning, boundary value analysis and regression testing with an example. (13)
15. (a) (i) Outline the fundamental principles of DevOps. (7)
(ii) Outline the deployment pipeline with a diagram. (6)

Or

- (b) Present an outline of cloud based DevOps platform and highlight the advantages of the same. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Preethi Tools sells a line of high-quality woodworking tools. When customers place orders on the company's Web portal, the system checks to see if the items are in stock, issues a status message to the customer, and generates a shipping order to the warehouse, which fills the order. When the order is shipped, the customer is billed. The system also produces various reports. Draw a data flow diagram for the order system. (15)

Or

- (b) Present a modular design for a "Library Management System". State the functional requirements you are considering. (15)