

APJ Abdul Kalam Technological University  
 First Semester M.Tech Degree Examination December 2016  
 Ernakulam II Cluster  
 COMPUTER SCIENCE AND ENGINEERING  
 Specialization: COMPUTER SCIENCE AND ENGINEERING

**05CS 6007 OBJECT ORIENTED SOFTWARE ENGINEERING**

Time: 3 hrs.

Max. Marks: 60

- I a) XYZ Inc. wants to produce a system that will perform computer-aided design for the home construction industry. Initial analysis of the problem leads to requirements calling for 3 major modules , with the following sizes:

Screen drawing	2.00 KDSI
Object –base management	3.50 KDSI
Algebra/numerical methods	1.75 KDSI

The company like to make their market as large as possible, which means the package should run on slower PC's as well as faster ones. For the project, then these effort adjustment factors are estimated:

Cost Drivers	Rating	
Data base size	high	1.08
Product Complexity	very high	1.30
Main storage	very high	1.21
Execution time constraints	high	1.11
Programmer capability	very high	0.70
Programming Language Experience	very low	1.14

All other factors are nominal. Find the development time and people required, using COCOMO. (6 marks)

- b) Extreme programming in Agile model starts with user stories. How is it converted into a real product? (6 marks)
- II a) Consider the problem domain for a football tournament. A football tournament is made up of at least eight teams. Each team is composed of 15 to 18 players, and one player captains the team. A team has a name and a record. Players have a number and a position. Teams play games against each other. Each game has a score and a location. Teams are sometimes lead by a coach. A coach has a level of accreditation and a number of years of experience, and can coach multiple teams. Coaches and players are people, and people have names and addresses. Draw a UML class diagram for this problem domain. (6 marks)
- b) Problem statement: Student Attendance Monitoring System. Student Attendance Monitoring System is used to track the attendance of students in an Institute. Faculty advisor can add students into the system, which is verified and approved by HOD. Once the students list is approved, the teachers can mark attendance on the system. Students can apply for duty leaves to

the faculty advisor. Faculty advisor forwards the application to the HOD for approval. Students, teachers, faculty advisor and HOD can view the attendance reports of every student. Draw the sequence diagram for this problem statement. (6 marks)

- III a) Propose an architectural design for an ATM system using Model/View/Controller (MVC) architecture. (6 marks)
- b) With the help of a sample scenario explain how the analysis models are formulated and used by developers. (12 marks)

OR

- IV a) Describe the concepts of interface specification and Object Constraint Language with example? (18 Marks)
- V a) What is refactoring? When to refactor? How refactoring is performed? (10 marks)
- b) Explain the Mapping of Object Models to a Persistent storage schema with suitable examples. (8 marks)

OR

- VI a) Consider a method that will return the fare of a transport bus, given the source, destination and number of passengers. The source and destination are specified as integers. 1 represents station A, 2 represents station B etc. The total number of seats is 30. Generate test cases for Unit testing the system. (6 marks)
- b) Explain configuration management? Discuss the main concepts related to configuration management. (12 marks)