COLLEGE OF ENGINEERING, PUNE

(An Autonomous Institute of Government of Maharashtra.)

END Semester Examination

Programme: B.Tech | **Semester : VI**

Course Code: CT-090012 | **Course Name: Software Engineering**

Branch: Computer Engg. | **Academic Year: 2016-17**

Duration: 3 hrs | **Max Marks: 60**

Student MIS No.

Instructions:

1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of stationery, calculator etc. not allowed.
5. Write your MIS Number on Question Paper.

Q1 A What is Agile Process? Explain Scrum frame work with suitable example. [5]

OR

B How are software myths affecting software process? Explain with the help of examples.

C Discuss in detail requirement management. [5]

Q2 A What are the various key process areas at defined level in CMM? Describe activities associated with one key process area. [5]

B What are different elements of architectural style at data design? Elaborate two styles with suitable example. [5]

Q3 A Write short note on CRC Modelling. [5]

B Discuss the process of translating the analysis model to design model by describing significance of each element. [5]

Q4 A Which is the predictor variable in cost construction model making it univariate dependent? Discuss its significance in basic model. [5]

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 and staff size.

B Consider a program for date generation. The user input is a day, month and year with the values in the range mentioned below. The date is displayed in mm/dd/yyyy format. [10]

$1 <= month <= 12$

$1 <= day <= 31$

$1900 <= year <= 2025$

The possible outputs are "Valid date" and "Invalid date". Write pseudo code, draw flow graph. Find the basis set. Design the required test cases to carry manual testing.

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Q5 A. Software has to be developed for automating the manual library of a University. The system should be stand alone in nature. It should be designed using the diagrams stated below – [10]

1. Use case Diagram for library management. [3]
2. Sequence Diagram – Issue book and Return book [4]
3. Class Diagram of the system [3]

to provide the functionalities as explained below:

Issue of Books:

- A student of any course should be able to get books issued.
- Books from General Section are issued to all but Book bank
- Books are issued only for their respective courses.
- A limitation is imposed on the number of books a student can issue.
- A maximum of 4 books from Book bank and 3 books from General section is issued for 15 days only. The software takes the current system date as the date of issue and calculates date of return
- A bar code detector is used to save the student as well as book information.
- The due date for return of the book is stamped on the book.

Return of Books:

- Any person can return the issued books.
- The student information is displayed using the bar code detector.
- The system displays the student details on whose name the books were issued as well as the date of issue and return of the book.
- The system operator verifies the duration for the issue.
- The information is saved and the corresponding updating takes place in the database.
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Query Processing:

- The system should be able to provide information like:
- Availability of a particular book.
- Availability of book of any particular author.
- Number of copies available of the desired book.
- The system should also be able to generate reports regarding the details of the books available in the library at any given time. The corresponding printouts for each entry (issue/return) made in the system should be generated. Security provisions like the 'login authenticity should be provided. Each user should have a user id and a password. Record of the users of the system should be kept in the log file. Provision should be made for full backup of the system.

B Discuss difference between application of stubs and drivers with suitable examples. [5]