MCA (Revised)

Term-End Examination

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June, 2018

MCS-034 : SOFTWARE ENGINEERING

Time : 3 hours   *Maximum Marks : 100*

(Weightage : 75%)

Note : *Question no. 1 is **compulsory**. Attempt any **three** questions from the rest.*

1. (a)   The Computer Services Division of a
          University wants to design a software
          solution to automate its *Complaints
          Management System.* The system should
          be allowed to record all the complaints
          from the users/departments of the
          University and provide services on priority
          basis. It should also produce reports of
          daily listing of complaints (attended and
          unattended), pending, etc. Assumptions
          can be made wherever necessary. To

accomplish the above mentioned tasks, perform the following :

(i) Develop SRS for this system. 5

(ii) Draw context-level DFD, 1st level and 2nd level DFDs. 5

(iii) Identify all the modules and their functionalities. 5

(iv) Design an ER diagram. 5

(b) Explain the role of the following for the success of a web application project : $4\times2\frac{1}{2}=10$

(i) Webmaster

(ii) Application support team

(iii) Content development team

(iv) Web publisher

(c) With the help of an example, explain the component based software engineering process. 10

2. (a) Discuss the phases of Software Development Life Cycle with the help of an example project. 10

(b) Differentiate between Cohesion and Coupling. Also explain three different types of coupling and cohesion with a suitable example for each. 10

3. (a) Define Software Metrics. List and explain the parameters for software measurement. *10*

(b) Explain the significance of CASE Repository. What are its contents ? Comment on each one of them. Also, briefly describe the two primary segments of it, (i) Information repository, and (ii) Data dictionary. *10*

4. (a) How can formal methods be used to specify the aspects of a system other than the functionality ? Also list some of the areas where the formal specifications can be applied. *10*

(b) With the help of an example program segment, explain Mutation Testing. *10*

5. Write short notes on the following : *4×5=20*

(a) Prototyping Model

(b) Boundary Value Analysis

(c) COCOMO Model

(d) Regression Testing