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Department of Computer Science and Engineering
B. Sc. in CSE
Semester Final Examination 2017(Jan-Jun)
Level 3 Semester I, Course Code: CSE 301, Credit: 3.0
Course Title: Software Engineering

Time: 3 Hours

Total Marks: 90

[N.B. The figure in the right margin indicates the marks for respective question]

Section-A
Answer any THREE

1. a) Define Software. Write the characteristics of software. 5
   b) Explain the term "Software doesn't wear out". 3
   c) What are the generic process framework activities for developing software? Explain. 4
   d) What are the key challenges facing Software Engineering? 3

2. a) List three major shortcomings that we might face, if we use the classical waterfall model for developing all types of software products. 3
   b) Write short note on Legacy Systems. 3
   c) Briefly describe the terms Structured Analysis (SA) and Structured Design (SD) in the context of function-oriented design. 6
   d) Mention five important general skills and traits of a good software engineer. 3

3. a) Discuss about various levels of maturity in CMM. 5
   b) Explain why boundary value analysis is so important for the design of black box test suite for a problem. 4
   c) Point out the important differences between a Structure chart and a flow chart as design representation techniques. 3
   d) Suppose an embedded project has 8000 LOC. Determine the Effort, Development time and Average staff required to develop the software product. 3

4. a) What does the quality parameter "fitness of purpose" mean in the context of software products? Why is this not a satisfactory criterion for determining the quality of software products? 4
   b) Why is it necessary to detect as many errors as possible during code review and code inspection stages? 3
   c) Enumerate the different types of Coupling that a module might exhibit. 5
   d) What are the critical distinctions between a milestone and a deliverable? 3

Section-B

Answer any THREE

1. a) Distinguish between a program and a software product. 3

   b) What do you mean by DFD? Draw a DFD of Online shopping system. 6

   c) Why is it important to adhere to a life cycle model while developing a large software product? 3

   d) In computer security terms, explain the differences between an attack and a threat. 3

2. a) What does the term "balancing a DFD" mean? Give an example to explain your answer. 4

   b) Without developing an SRS document, an organization might face severe problems. Identify those problems. 4

   c) Point out three important differences between the function-oriented and the object-oriented approaches to software design. 3

   d) What are the most important dimensions of system dependability? Discuss. 4

3. a) What is regression testing? Why is regression testing necessary? 3

   b) Distinguish between software verification and software validation. 3

   c) Briefly outline the important steps involved in developing a software system using a popular OOD methodology. 5

   d) Draw an activity diagram of Airline reservation system. 4

4. a) Define the metrics to measure software reliability. 3

   b) Why is it important for a software development organization to obtain ISO 9001 certification? 3.5

   c) Define CASE. What are the main advantages of using CASE tools? 5

   d) What do you mean by the term software reverse engineering? 3.5