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Roll No. ....

FOURTH SEMESTER

**E.TechLIFT**

**END SEMESTER EXAMINATION**

**May-2018**

**SE-202 SOFTWARE ENGINEERING**

**Time: 3:00 Hours**

**Max. Marks: 40**

**Note:** Question 1 is compulsory. Answer any **FOUR** questions from the remaining six questions. Assume suitable missing data, if any.

**1[a]** Attempt all questions

- i. Write down the major characteristics of software. Illustrate with a diagram that the software does not wear out. (2)
- ii. What is productivity? How is it related to effort? What is the unit of effort (1)
- iii. What are the characteristics to be considered for the selection of the life cycle model? (2)
- iv. What is software process? Why is it difficult to improve it? (1)
- v. What do you understand with the term "requirements elicitation"? Discuss any one technique in detail. (2)

**2 [a]** Compare iterative enhancement model and evolutionary process model. (4)

**[b]** What are the characteristics to be considered for the selection of the life cycle model? (4)

**3** Air ticket reservation (AIR) system is a software required to automate the Reservation System for an Airline at an Airport or elsewhere Primary task deals with the following functionalities:

- Maintenance of user account
- Maintenance of flight database i.e. flight number, timing number of seats etc.
- Reservation of Air tickets
- Canceling of Air tickets
- Enquiry about flight schedules, fares, timings etc.
- Reports regarding day-to-day bookings, ticket availability, passengers database etc.

Air Ticket may be issued on demand for any flight to and from any destination for any date and in any class as desired by the passenger depending on the availability.

After any issue or cancellation of the ticket the corresponding information has to be updated so that the ticket availability shows the status of the seats actually available/unavailable. Enquiries made by the passenger also need to be furnished disclosing the timing and availability of flight and air tickets in particular classes for the dates provided by the enquirer.

For the sale of an air ticket or for its cancellation, money will be paid or refunded and thus there will be need for account maintenance, which may include ledger, sale book receipt etc.

The system is expected to be able to help in the running of the air ticket reservation counter at an airport or elsewhere, thus helping in the overall functioning of any airlines government or private.

There will also be kept a detailed account of all the passenger list for all flights thus aiding in cross checking any information that may be of use to the airline or any other authorities.

Consider the case study given above. Draw DFD upto level 2 (8)

4. [a] Explain all the levels of COCOMO model. Assume that the size of an organic software product has been estimated to be 25K lines of code. Determine the effort required to develop the software product and the nominal development time. (4)  
[b] Is it possible to estimate software size before coding? Justify your answer with suitable example. (4)
5. [a] What is design? Describe the difference between conceptual design and technical design. (4)  
[b] Define module coupling and explain different types of coupling. (4)
6. [a] Consider a program for the classification of a triangle. Its input is a triple of positive integers (say, a, b, c) from the interval [1, 100]. The output may be one for the following words [scalene, Isosceles, Equilateral, Not a triangle]. Design the boundary value test cases, robust worst case test cases. (4)

[b] What is cyclomatic complexity? What is the significance of using it?  
Explain with the help of an example. (4)

7. [a] What is software maintenance? Describe various categories of maintenance. Which category consumes maximum effort and why? (4)  
[b] Annual Change Traffic (Act) in a software system is 25% per year. The initial development cost was Rs. 10 lacs. Total lifetime for the software is 10 years. What is the total cost of the software system? (4)

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