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Roll Number:

*Thapar Institute of Engineering and Technology, Patiala*
Computer Science and Engineering Department

BE (Semester-III) — Course Code: UCS503
Course Name: Software Engineering
Feb 26, 2020 — Wednesday, 05.30 - 08.30pm Hrs
Time: 3 Hours, M. Marks: 100 — Name Of Faculty: Vinod K Bhalla

***Note:*** ***Attempt all questions. Assume missing data, if any, suitably***

Q1.Suppose we wish to design software for a Network based Employee Medical Insurance information System for an organization. Every employee in the organization is having a Sanctioning Authority (i.e. an officer who is higher in designation than the employee who can sanction different claims made by the employee and employee should apply to this office.

1. Lay down the functional requirements and constraints
2. Also specify the non functional requirements [20]

Q2. Read the following scenario (Use case) carefully for order processing:

When an order is received each line item on the order is checked to see if there are goods in stock. If so the goods are assigned to the order. If this assignment sends the quantity of those goods in stock below the reorder level the goods are reordered. While doing this the payments is checked whether it is OK. If the payment is OK and there are goods in stock the order is
dispatched. If the payment is OK but there are not goods, the order is left waiting. If the payments are not OK the order is cancelled. You are supposed to make the following diagrams

1. Identify the objects required to design the above system. Also identify the attributes of each object.
2. Draw the Class Diagram also. [20]

Q3a. Discuss the significance and importance of requirement engineering specifications. What are functional and non functional requirements? [10]
Q3b. Discuss the objective of modular design. What are the effects of module coupling and cohesion? [10]

Q4. An airline reservation is an association between a passenger, a flight and a seat. Select the pertinent attributes of these entity types and represent a reservation in E-R diagram. [20]

Q5 Consider a project with the following functional units.

Number of user inputs = 30; Number of user outputs = 44; Number of user enquires= 8
Number of user files = 05; Number of external interfaces = 06

**TABLE 1: Function point complexity weights.**

| Measurement parameter | Weighting factor | | |
|---|---|---|---|
| | Simple | Average | Complex |
| Number of user inputs | 3 | 4 | 6 |
| Number of user outputs | 4 | 5 | 7 |
| Number of user inquiries | 3 | 4 | 6 |
| Number of files | 7 | 10 | 15 |
| Number of external interfaces | 5 | 7 | 10 |

Using the above information for sack of early estimation. Assume all complexity adjustment factors and weights as average. calculate the function points for the project [20]