



Continuous Assessment Test – II

Programme Name & Branch: B.Tech & CSE, IS

Slot : F1

Course Name & Code: CSE3001 & Software Engineering

Max Marks: 50

Class Number : VL2018195002743

Exam Duration: 90 MINS

Answer All the Question

Sl.No.

✓ The hospital has several specialized departments like Cardiology, Gynaecologic, Orthopaedics, Paediatrics, ENT etc. OPD is another independent department. A doctor is only associated with one specialized department at a time though he/she can be a member of the OPD (Outside Patients Department) department. Each doctor has a visiting time and day in a week. At reception the patient details are entered and the fees are also taken and the patient is tracked on the basis of the Id generated. In routine a patient can visit the doctors either directly selecting a doctor or by getting admitted to the hospital and then a doctor visits the patients.

A doctor can prescribe tests for the patient to perform. The patient visits the lab to get done the tests prescribed by his/her doctor. The reports are given to the patient. The payments pertaining to the tests are done at the reception. Referring the reports, the doctor prescribes the patient medicines or further tests or is asked to get admitted.

A patient is admitted into a ward of a specialized department (if available) as per the doctor's prescription. The number of wards is limited and if there is no vacant ward the admission of the patient is rescheduled. As per the prescription of the doctor the patient is operated on a specified date and time as decided by the doctor who is doing the operation. After the completion of the treatment a patient may get discharged on an advice of a doctor and upon the complete payment of all due charges at the reception. On payment of full dues the reception generates a discharge ticket for the patient

- ✓ a. For the above Hospital management system, create ER model to show the entities and its relationships (5 Marks).
- ✓ b. Derive the context model and the data flow model of level-1 and level -2 for the same scenario (7 Marks).
- ✓ c. Which model is best suited for the given scenario? Justify (3 Marks).

With reference to the Hospital management system described in Question 1,

- ✓ a. Generate a Sequence model for Patient admission and Patient discharge tasks of hospital management system. (6 Marks)

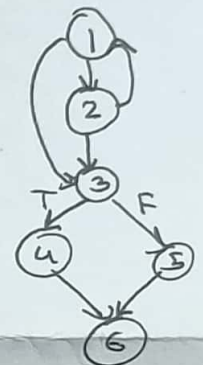
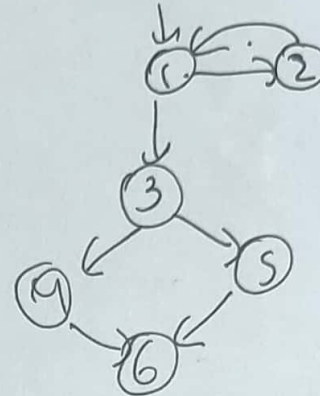
- b. Derive a Collaboration model for the tasks of Patient admission and Patient discharge from the hospital. (6 Marks)
- c. State any two disadvantages of modelling these scenarios using each of collaboration model and sequence model. (3 Marks).

3.

For the below given lines of code,

```

program Example()
var staffDiscount, totalPrice, finalPrice, discount, price
staffDiscount = 0.1
totalPrice = 0
input(price)
while(price != -1)
{
    totalPrice = totalPrice + price
    input(price)
}
print("Total price: " + totalPrice)
if (totalPrice > 15.00) then
    discount = (staffDiscount * totalPrice) + 0.50
else
    discount = staffDiscount * totalPrice
print("Discount: " + discount)
finalPrice = totalPrice - discount
print("Final price: " + finalPrice)
endprogram
  
```



- a. Create a CFG and calculate the cyclomatic complexity using all the three methods. (6 Marks)
- b. Write down the minimal set of test cases that would help to achieve the statement coverage (2 Marks)
- c. Write down the minimal set of test cases that would help to achieve Boundary value testing (2 Marks)

4.

A University maintains a web-portal which enables the student to apply for leave. Personal details of the student are already available in his Login. The student submits his leave requests mentioning the dates and the purpose. The request is further assigned to his sanctioning authority. The Proctor can view his requests, his attendance status, request posted by the parents and then decide on sanctioning the leave. The sanctioned leave details would be updated in a database for attendance shortage decision making.

- a. Design thin client based architecture for the given scenario. (4 Marks)
- b. Design fat client based architecture for the given scenario. (4 Marks)
- c. What kind of user interaction style would you prefer for this scenario and why? (2 Marks)