

Question Paper

Exam Date & Time: 08-Dec-2023 (02:30 PM - 05:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

FIFTH SEMESTER B.TECH. DEGREE EXAMINATIONS - NOVEMBER / DECEMBER 2023
SUBJECT: CSE 3154- SOFTWARE ENGINEERING

Marks: 50

Duration: 180 mins.

Answer all the questions.

- 1A) Determine, with justification whether software engineering may be deemed as a field of science or a field of art (2)
- 1B) Define Exploratory style of software development, and explain with a diagram. (3)
- 1C) Describe in detail the activities carried out in the Requirement Analysis and Specification Phase of the Waterfall model (5)
- 2A) Explain the agile model to be used when a project is divided into small parts of work that can be incrementally developed and delivered over time boxes. List 3 important disadvantages of agile models. (5)
- 2B) Determine any three Requirements of the Airline Reservation System. Each requirement should contain input, output & processing parts. (3)
- 2C) Applying the rules in the table given below, draw the decision tree for the logic given in the table. (2)

Age	Inco me	Credit Rating(CR)	Buys Computer
<=30	high	fair	yes
<=30	high	excellent	no
<=30	low	fair	yes
<=30	low	excellent	no
>30	high	fair	yes
>30	high	excellent	no
>30	low	fair	no
>30	low	excellent	no

- 3A) Explain how modularity facilitates the testing process in software development. Provide examples of testing scenarios that benefit from a modular design. (2)
- 3B) Discuss the problems that are likely to arise if two modules in a software system have high coupling. Provide examples and explain the impact on system design and maintenance. (3)
- 3C) Write context diagram and level 1 DFD for Trading-House Automation System to automate book keeping activities associated with its business. It has many regular customers: They place orders for various kinds of commodities. The trading house maintains names and addresses of its regular customers. Each customer is assigned a unique customer identification number (CIN). As per current practice when a customer places order: The accounts department first checks the credit-

worthiness of the customer. By analysing the history of his payments to the bills sent to him in the past. If a customer is not credit-worthy: His orders are not processed any further. An appropriate order rejection message is generated for the customer. If a customer is credit-worthy: Items he/she has ordered are checked against the list of items the trading house deals with. The items that the trading house does not deal with are not processed any further. An appropriate message for the customer for these items is generated.

- 4A) Draw use case diagram for online shopping and represent associations among customers and admins for managing inventory and orders. (3)
- 4B) Draw UML sequence diagram for chat application for exchanging messages in chat room. (5)
- 4C) Explain the Model view controller pattern. (2)
- 5A) Explain the difference between code inspection and walkthrough. (2)
- 5B) i) Explain the Black box testing with suitable example. (5)
ii) Draw the control flow graph for the following function named find maximum and determine its cyclomatic complexity:

```
int find-maximum(int i,int j, int k){  
    int max;  
    if(i>j) then  
        if(i>k) then  
            max=i;  
        else max=k;  
    else if(j>k)  
        max=j  
    else max=k;  
    return(max);  
}
```

(2+3 = 5 marks)

- 5C) Explain methods of System testing with any suitable examples. (3)

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