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Manipal Institute of Technology

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER B. TECH. (COMPUTER SCIENCE AND ENGINEERING)

END SEMESTER EXAMINATIONS, Nov-Dec 2019

SUBJECT: SOFTWARE ENGINEERING [CSE 3104]

REVISED CREDIT SYSTEM

(20/11/2019)

Time: 3 Hours

Max. Marks: 50

Instructions to Candidates:

- Answer **ALL** questions & missing data may be suitably assumed.

- 1.A. Write a brief note on each of the following emergence of the software design techniques. 3M
(a)Control Flow-Based Design (b)Data Structure-Oriented Design
(c)Data flow-Oriented Design
- 1.B. Explain how Software Engineering has evolved from an art form to an Engineering 3M
Discipline with the help of a neat diagram.
- 1.C. Explain the Evolutionary model with the help of a diagram. Give any two advantages of 4M
the Evolutionary model.
- 2.A. Differentiate between the different techniques used to analyze and represent the complex 3M
logic.
- 2.B. A marketing company wishes to construct a decision table to decide how to treat clients 2M
according to three characteristics: Gender, City Dweller, and age group: A (under 30), B
(between 30 and 60), C (over 60). The company has four products (W, X, Y and Z) to test
market. 2M
- Product W will appeal to male city dwellers.
 - Product X will appeal to young males.
 - Product Y will appeal to Female middle aged shoppers who do not live in cities.
 - Product Z will appeal to all but older males.
- Construct a decision table to represent the above given requirements.
- 2.C. Give the algebraic specification for specifying a data type called point, supporting the 5M
following operations: create, getX_cord, getY_cord, isEqual where all the operations have
their usual meaning. Using the specification developed, reduce the following expression by
applying the necessary rewrite rules. Show the details of every reduction.
isEqual (create (getX_cord (create (2,3)),5), create (getY_cord (create(2,3)),5)).
- 3.A. Buses come to a garage for repairs. A mechanic and helper perform the repair, record the 4M
reason for the repair and record the total cost of all parts used on a Shop Repair Order.
Information on labor, parts and repair outcome is used for billing by the Accounting
Department, parts monitoring by the inventory management computer system and a
performance review by the supervisor. Identify the external entities and key processes also
Draw the context diagram for the above problem.

3.B. Whether object models given in Fig 3B-(a) and Fig 3B-(b) are valid or not? Give reasons for your answer.

3M

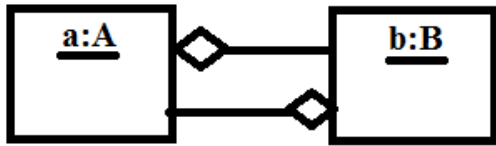


Fig. 3B-(a)

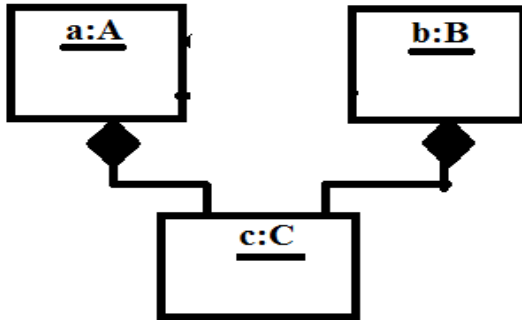


Fig. 3B-(b)

3.C. List and explain operators of a combined fragment used in the sequence diagram.

3M

4.A. Explain cohesion and coupling in terms of its strength.

5M

4.B. Explain three types of COCOMO models, enlisting all the points.

5M

5.A. What are two types of Software Documentations? Explain.

3M

5.B. Apply McCabe's Cyclomatic Complexity Metric for the following pseudocode:

4M

```
while ( num! =0)
{
    fact=fact*num;
    num=num-1;
}
cout<<"\n"<<fact;
```

5.C. Explain work breakdown structure with an appropriate example in project management.

3M