National Institute of Technology Mizoram

Mid – Semester Examination, Even Semester - 2023

Software Engineering (CSL 1602)

BTech 6th Semester (CSE+ECE) **Full Marks: 30 marks** **Duration: 1 hour 30 mins**

Answer all 3 (Three) Questions. All Questions carry same Marks

(3 * 10 = 30 Marks)

1.

a) For a software product of estimated 200,000 lines of code, to be developed in Organic Mode, what will be the nominal effort and the development time? (4)

b) What role Cohesion and Coupling play in the design process of a software? Why coupling should always be less? Give an example of high and low coupling. (2x3)

2.

a) Represent the following requirement in the form of a decision table. (4)

A customer requests a cash withdrawal. One of the business rules for the ATM is that the ATM machine pays out the amount if the customer has sufficient funds in their account or if the customer has the credit granted.

b) How are the risks handled in Spiral model? What are the pros and cons of the model? (3+3)

3.

a) How transform analysis is applied on a DFD? Explain briefly. (5)

b) Why project estimate based on only lines of code were considered inefficient? How Function point metric improved upon this notion? (5)

National Institute of Technology Mizoram
End-Semester Examination, Even Semester (2022-23)
Software Engineering (CSL – 1602)
B.Tech (CSE+ECE) Semester - 6th Full Marks - 50 Duration - 2:30 hours

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Answer all Questions. All Questions carry same marks
(5 * 10 = 30 Marks)

1. Write short notes on the following (2x5)
   a) SEI Capability Maturity Model
   b) Code Review

2. a) What are the different reliability metrics used for a software product? Briefly mention them. (6)
   b) How 'Complete COCOMO' model considers the software differently from 'Basic COCOMO'? Which is better among them? (3+1)

3. a) Design the black box test suite for a function called find-intersection. The function accepts four real numbers m1,c1,m2,c2 as its arguments representing two straight lines y=m1x + c1 and y=m2x + c2. It determines the points of intersection of two lines. Depending upon the input values to the function, it displays any one of the following messages.
   -single point of intersection
   - overlapping lines (infinite point of intersection)
   - Parallel lines (no point of intersection)
   - Invalid input values

   (6)

   b) What are the shortcomings of the DFD model? (4)

4. Draw Use Case, Class and Sequence Diagram for the following. (Formulate your own requirements and mention them briefly) (2+2+3+3)

   Shopping Mall Management System

5. For the given data.

a) Draw the network diagram (3)

b) Find out the expected duration and variance of each activity (4)

c) Find the Critical path and expected duration of the project (3)

Activity	T0	Tm	Tp
1-2	2	5	14
1-6	2	5	8
2-3	5	11	29
2-4	1	4	7
3-5	5	11	17
4-5	2	5	14
6-7	3	9	27
5-8	2	2	8
7-8	7	13	31

National Institute of Technology Mizoram

Mid – Semester Examination, Even Semester - 2022

SOFTWARE ENGINEERING (CSL 1602, CSL 2205)

B.Tech 6th Semester (CSE+ECE), M.Tech CSE **Full Marks: 15** **Duration: 1:00 hours**

ANSWER ALL QUESTIONS

1. a) State the reason behind the statement "Classical Waterfall model is only a theoretical model". [3]
   b) How will you justify that the SRS document that you have prepared is properly build? [2]

2. For a Software to be designed for a mission critical system which type of software design model will you prefer and why? Briefly describe based on proper figure. [5]

3. What do you mean by cohesion and coupling in the context of software design? How are these concepts useful in arriving at a good design of a system? Which type of cohesion is preferred to have in the design? [2+2+1]

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Mid – Semester Assignment, Even Semester - 2022

SOFTWARE ENGINEERING (CSL 1602, CSL 2205)

B.Tech 6th Semester (CSE+ECE), M.Tech CSE **Full Marks: 15**

ANSWER ALL QUESTIONS

1. Design a complete SRS for an online gaming event management system with the different functional and non-functional requirements. Also represent the decision table format for any two of those functional requirements. [4+4]
2. Draw the Class Diagram and Sequence Diagram for the requirement you have mentioned above. [7]