

C10-R4 : SOFTWARE SYSTEMS

NOTE :

1. Answer question 1 and any FOUR questions from 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

Total Time : 3 Hours

Total Marks : 100

1.
 - (a) Give the relative strengths and weaknesses of Waterfall Model and Spiral Model.
 - (b) What is the difference between functional testing and structural testing ?
 - (c) Explain why software failure rate with time is not a simplified bath tub curve ?
 - (d) What is the difference between Fork and Stair Case structure of Sequence Diagram and under what circumstances each of them is used ?
 - (e) What are the umbrella activities in software engineering process ?
 - (f) Differentiate between software reliability and software availability measures. Also mention the methods of evaluating both the measures.
 - (g) What are the characteristics of a good Software Requirement Specifications ? (7x4)

2.
 - (a) Give reasons as to why analysis phase should be given sufficient time and implementation decisions should be deferred to design phase ?
 - (b) Describe Problem Domain Model and Scope of Problem for Online Pharmacy.
 - (c) Develop a Use Case diagram for College Recommender System. (4+6+8)

3.
 - (a) What is the relative importance of formal technical reviews and informal reviews ?
 - (b) Draw an ERD for College Recommendation System.
 - (c) Draw a Context Diagram and First Level DFD for a College Recommendation System. (6+5+7)

4.
 - (a) Depict and explain the relationship between modularity and software cost.
 - (b) What is functional independence and how is it achieved during design ? What are the various types of coupling and cohesion ? Explain.
 - (c) Develop a sequence diagram for event cancellation in online event booking system. (4+8+6)

5. (a) Draw an Activity Diagram for Online Movie Booking.
(b) What is more important: Product or Process ? Justify your answer.
(c) Draw the Sequence Diagram for posting messages on a Health Blog.
(5+7+6)
6. (a) Why Interface descriptions are important in Use Case Diagrams ?
(b) What is Path Testing process ? What is Cyclomatic Complexity ? How is it calculated ? Briefly mention about the various Path Testing Techniques.
(c) Describe the McCall software quality model. How many product quality factors are defined and why ? How is it different from ISO 25010 quality Model ?
(2+8+8)
7. (a) Draw the Activity diagram for Booking order in Online Shopping.
(b) Explain the differences and similarities between Agents and Objects.
(c) Give a brief Taxonomy of Architectural Styles.
(5+5+8)

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