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MCS-503

MCA/MSCIT

(Software Engineering)

1st/3rd Semester Examination, 2024 (June)

Time : 2:00 Hrs.   Max. Marks : 70

Note :– This paper is of Seventy (70) marks divided into Two (02) Sections 'A' and 'B'. Attempt the questions contained in these Sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.***

Section–A

(Long Answer Type Questions)   2×19=38

Note :– Section 'A' contains Five (05) Long-answer type questions of Nineteen (19) marks each. Learners are required to answer any *two* (02) questions only.

1. Answer the following :

   (a) Explain the principles of structured programming. How does structured programming contribute to the development of reliable and maintainable software ?   10

   (b) Compare and contrast prototyping and spiral life cycle models. Discuss scenarios where each model is suitable for software development.   9

2. Answer the following :

   (a) Discuss the basic concepts in software design. Explore the various design approaches currently used in software engineering.   10

   (b) Provide an overview of current design approaches in software engineering. How have these approaches evolved over time to address the challenges in software design ?   9

3. Answer the following :

   (a) Explain the use of Data Flow Diagrams (DFD) in function-oriented software design. How do DFDs assist in visualizing and designing a system ?   9

(b) Create a DFD model for a system of your choice, highlighting its components and interactions. 10

4. Answer the following :

(a) Explain the basic ideas behind the Unified Modeling Language (UML). Discuss its significance in object-oriented software development. 9

(b) Discuss the concept of software development life cycle. Discuss any one software development life cycle model in brief. 10

5. Answer the following :

(a) Discuss basic concepts in user interface design. How does user interface design contribute to the overall user experience in software applications ? 9

(b) Discuss the concepts of project planning and project estimation techniques in software-engineering. 10

Section–B

(Short Answer Type Questions)   4×8=32

Note :– Section 'B' contains Eight (08) Short-answer type questions of Eight (08) marks each. Learners are required to answer any *four* (04) questions only.

1. Describe the basics of the software life cycle. Discuss the waterfall model and its application in software development.

2. Explain the basic concepts in requirements analysis and specification. Discuss the challenges and importance of accurately capturing software requirements.

3. Discuss the principles of structured design. How does structured design contribute to effective and maintainable software development ?

4. Compare and contrast black-box testing and white-box testing. Discuss their respective advantages and limitations.

5. Explain the COCOMO model and its application in estimating software development efforts.

6. Explain risk management and software configuration management in the context of software project monitoring and control.

7. Discuss ISO 9000 standards and their significance in software quality management

8. Explain the basic ideas of software reuse. How does software reuse enhance productivity and reduce development time ?

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