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[Roll No.]

MCS-503

**MCA/MSCIT Ist/IIIrd Semester
Examination Dec., 2023**

SOFTWARE ENGINEERING

Time : 2 Hours]

[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 there in. **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.

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(1)

P.T.O.

1. Answer the following :
 - (a) Discuss the basic ideas behind software reuse. How can a software development team effectively implement a reuse approach ? (10)
 - (b) Explore different approaches to software reuse. Discuss their advantages and potential challenges. (9)

2. Answer the following:
 - (a) Provide basic ideas on client-server software development. Discuss the architecture and key components of client-server systems. (9)
 - (b) Explain CORBA (Common Object Request Broker Architecture) and COM/DCOM (Component Object Model/Distributed Component Object Model) in the context of client- server software development. (10)

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. Discuss any one software development life cycle model in brief.
5. Answer the following :
- (a) Explain the COCOMO (Constructive Cost Model) and its significance in project estimation. Discuss the factors considered in COCOMO. (9)
 - (b) Explore the key issues related to software reliability. How is software reliability measured, and what challenges are faced in achieving high reliability ? (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. Explain Norden's model in the context of staffing requirements for a software project.
2. What is meant by domain modeling ? Explain.
3. Describe the basics of the software life cycle. Discuss the waterfall model and its application in software development.
4. Provide basic ideas on CASE (Computer-Aided Software Engineering) Tools. Discuss their significance in the software development process.
5. Discuss the principles of structured design. How does structured design contribute to effective and maintainable software development ?
6. Discuss the characteristics of software maintenance. Why is software maintenance an essential phase in the software life cycle ?
7. Compare and contrast black-box testing and white-box testing. Discuss their respective advantages and limitations.
8. Explain risk management and software configuration management in the context of software project monitoring and control.
