

2024

Time : 3 hours

Full Marks : 70

*Candidates are required to give their answers
in their own words as far as practicable.*

The figures in the margin indicate full marks.

Answer all sections as directed.

Section–A

Objective type Questions

Compulsory

1. Choose the correct answer of the following multiple choice questions : $2 \times 10 = 20$
 - (i) Which of the following best defines Software Engineering as a Layered Technology?

- a) It is a collection of programming techniques
 - b) It consists of process, methods, and tools layered over a quality focus
 - c) It is an alternative to traditional engineering
 - d) It eliminates the need for process models
- (ii) Which of the following software process models is best suited for projects with highly uncertain requirements?
- a) Waterfall Model
 - b) Incremental Model
 - c) Spiral Model
 - d) Prototyping Model
- (iii) The Capability Maturity Model Integration (CMMI) primarily focuses on:
- a) Ensuring that software is defect-free
 - b) Establishing a structured approach to software process improvement

- ng
and
nal
cess
cess
with
- c) Reducing software development cost
- d) Replacing traditional project management
- (iv) In the software process framework, what is the main difference between framework activities and umbrella activities?
- a) Framework activities are optional, while umbrella activities are mandatory
- b) Framework activities define the core process, while umbrella activities provide support functions
- c) Framework activities focus on testing, while umbrella activities focus on coding
- d) There is no difference; both serve the same purpose
- Model
es on:
effect-
proach
ment

(v) Which of the following is NOT a requirement analysis technique?

- a) Prototyping
- b) Data Flow Diagrams (DFDs)
- c) UML Sequence Diagrams
- d) Code Review

(vi) Functional requirements in software engineering define:

- a) The software's internal architecture
- b) The system's expected behavior and features
- c) The software's security policies
- d) The constraints on design choices

(vii) Why is Flow-Oriented Modeling important in requirement analysis?

- a) It helps in understanding the movement of data within a system
- b) It provides a graphical user interface for the system

- c) It eliminates the need for coding
- d) It ensures faster development without documentation

(viii) Which of the following is an example of a risk mitigation strategy?

- a) Identifying new risks after development
- b) Ignoring minor risks to focus on major ones
- c) Allocating additional resources to critical project tasks
- d) ~~Delaying risk management activities until the testing phase~~

(ix) What is the main purpose of a Risk Mitigation, Monitoring, and Management (RMMM) Plan?

- a) To eliminate all project risks
- b) To document how risks will be tracked and handled during development

- c) To reduce project cost
- d) To focus only on high-priority risks
- (x) Which of the following best defines "Software Quality Assurance (SQA)"?
 - a) A method to test software before deployment
 - b) A process to ensure that software meets predefined quality standards
 - c) A documentation technique for software development
 - d) A way to reduce the cost of software production

Section-B

Short Answer type Questions

Answer any **four** questions of the following :

5×4=20

2. Define SDLC waterfall model.
3. Explain why software does not "wear out" like physical hardware but still requires maintenance.

4. Why is software engineering considered a layered technology?
5. Describe the major differences between functional and non-functional requirements with examples.
6. How does Risk Projection differ from Risk Identification in software engineering?
7. What are Data Flow Diagrams (DFD)? Draw 0 Level and 1 level DFD for Student Registration System.
8. Explain Peer Reviews in Software Engineering.
9. Why do software projects often exceed their estimated schedule despite proper planning?

Section-C

Long Answer type Questions

Answer any **two** questions of the following :

15×2=30

10. Explain all five maturity levels in CMMI.

11. Explain how PERT (Program Evaluation and Review Technique) is used for project scheduling.
12. What is the significance of a Risk Mitigation, Monitoring, and Management (RMMM) Plan?
13. Explain why ambiguity in Software Requirements Specification (SRS) can lead to project failure.

————— x —————