

Roll No. ....

Total Pages : 4

**312306**

**December 2022**

**BCA (DS) IIIrd SEMESTER**

**Principles of Software Engineering (GEC-DS-2)**

Time : 3 Hours]

[Max. Marks : 75


*Instructions :*

- 1. It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
- 2. Answer any four questions from Part-B in detail.*
- 3. Different sub-parts of a question are to be attempted adjacent to each other.*

**PART-A**

1. (a) Differentiate between functional and non-functional requirements. (1.5)
- (b) What is software crisis? (1.5)
- (c) Is the waterfall model suitable for safety-critical projects? Justify your answer. (1.5)
- (d) Differentiate between data modelling and functional modelling. (1.5)
- (e) What is Traceability matrix? (1.5)

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- (f) Differentiate between Error, Fault and Failure with example. (1.5)
- (g) Differentiate between Load and Stress testing. (1.5)
- (h) Explain the need for software measurement and developing software metrics. (1.5)
- (i) What are software Characteristics? (1.5)
- (j) What is the difference between Verification and Validation? (1.5)

### PART-B

- 2. (a) Discuss the Spiral model of software development process in detail. (9)
- (b) Define Software Engineering. Discuss various software myths. (6)
- 3. (a) What do you understand by "requirements elicitation". Discuss any two techniques of requirement elicitation in detail. (6)
- (b) A Software has to be developed for automating the University result system. Draw use case diagram explaining all actors and flow of events. (9)
- 4. (a) Write an explanatory note on Risk Analysis and Management. (6)

- 5. (a) Consider a project to develop a full screen editor. The major components identified are (1) Screen edit (2) Command language interpreter (3) File input and output (4) Cursor movement and (5) Screen movement. The sizes for these are estimated to be 4 K, 2K, 1 K, 2 K and 3 K delivered source code lines. Use COCOMO model to determine :
  - (i) Overall cost and schedule estimates (assume values for different cost drivers, with at least three of them being different from 1.0). Take values for 4 cost drivers as 1.15, 1.15, 0.86 and 1.07.
  - (ii) Cost and Schedule estimates for different phases. (9)
- 5. (a) Discuss management spectrum in detail. (6)
- (b) What are various types of Coupling and Cohesion? Discuss in detail. (9)
- 6. (a) What is software configuration management? Explain in detail. (5)
- (b) Define Software Metrics. Explain in detail various software design metrics. (5)
- (c) What are different types of system testing? Explain in detail. (5)

7. Write short note on any three of the following :

- (a) Characteristics of a good SRS.
- (b) Inspection, Review and Walkthrough.
- (c) Function Count.
- (d) Software Re-engineering.

(15)