

**G-3/373/22**

Roll No. ....

**III Semester Examination, January 2022**

**M.Sc.**

**INFORMATION TECHNOLOGY**

Paper III

(Software Engineering)

Time : 3 Hours ]

[ Max. Marks : 100

**Note :** *All questions are compulsory. Question Paper comprises of 3 Sections. Section A is objective type/multiple choice questions with no internal choice. Section B is short answer type with internal choice. Section C is long answer type with internal choice.*

**SECTION A**

**1×10=10**

**(Objective Type/Multiple Choice Questions)**

Choose the correct answer :

1. The spiral model of software development.
  - (a) Ends with the delivery of the software product
  - (b) Is more chaotic than the incremental model
  - (c) Includes projects risks evaluation during each iteration
  - (d) All of the above

P.T.O.

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2. .... is a software development activity that is not a part of software process.
  - (a) Validation
  - (b) Specification
  - (c) Development
  - (d) Dependence
3. Software design is said to be a good design of the components are :
  - (a) Strongly coupled
  - (b) Weakly cohesive
  - (c) Strongly coupled and weakly cohesive
  - (d) Strongly cohesive and weakly coupled
4. What does a directed are or line signify is DFD ?
  - (a) Data flow
  - (b) Data process
  - (c) Data store
  - (d) None of these
5. Which of the following is used to predict the effort as a function of LOC or FP ?
  - (a) Cocomo
  - (b) FP-based estimation
  - (c) Both COCOMO and FP-based estimation
  - (d) Process based estimation
6. Which of the following is not a maturity level in CMM ?
  - (a) Design
  - (b) Repeatable
  - (c) Managed
  - (d) Optimizing

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7. Which of the following testing is related to black box testing ?
- Boundary value analysis
  - Code path analysis
  - Basic path testing
  - None of the above
8. Which of the following testing is also called acceptance testing ?
- Beta testing
  - White box testing
  - Grey box testing
  - Alpha testing
9. How many product quality factors are proposed in MC call quality model ?
- 2
  - 3
  - 11
  - 8
10. The modification of the software to match changes in the ever changing environment, falls under which category of software maintenance.
- Corrective
  - Adaptive
  - Perfective
  - Preventive

**SECTION B****6×5=30****(Short Answer Type Questions)****Note :** Answer the following questions in **250** words.**G-3/373/22**

P.T.O.

**Unit-I**

1. What are the various umbrella activities in software engineering ?

*Or*

What is meant by software engineering ? What is software crisis ? What are the causes and solution of software crisis ?

**Unit-II**

2. Discuss the components of software requirement specification (SRS) document.

*Or*

Explain the various types of cohesion.

**Unit-III**

3. What is function point metric ? Explain benefits and drawback of function point metric.

*Or*

Explain Mc Call's quality factor model.

**Unit-IV**

4. What do you mean by debugging ? Explain the process of debugging.

*Or*

Describe unit testing, integration testing and system testing.

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**Unit-V**

5. Describe Bohem's software maintenance model.

Or

What is software Re-engineering ? Briefly explain steps of software Re-engineering.

**SECTION C****12×5=60****(Long Answer Type Questions)**

**Note :** Answer the following questions in **500** words.

**Unit-I**

1. Explain Incremental model. Write advantages and disadvantages of incremental model.

Or

Explain RAD model. Write advantages and disadvantages of RAD model.

**Unit-II**

2. Explain the fundamental of software design concepts.

Or

Write short notes on the following :

- (a) Data dictionary
- (b) DFD
- (c) Coupling

**Unit-III**

3. Explain CMM model. Explain all the levels of CMM model.

Or

Describe software quality assurance and software reliability.

**Unit-IV**

4. Write short notes on the following :

- (a) White box and black box testing
- (b) Alpha and Beta testing

Or

What do you mean by verification and validation in software testing ? How to calculate cyclomatic complexity of a code, explain with example.

**Unit-V**

5. Explain Walston and Felix estimation model.

Or

Describe software project management and software risk management in detail.

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