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# SLIATE

**SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION**

(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

**Higher National Diploma in Information Technology**  
**Second Year First Semester Examination – 2019**  
**HNDIT 2312/IT3102 –Principles of Software Engineering**

**Instructions for Candidates:**

Part A is compulsory

Answer Part A on this paper itself.

Select any two from Part B

Index No:.....

No. of questions: 05

No. of pages : 06

Time: Two (02) hours

**PART-A**

**Q1)**

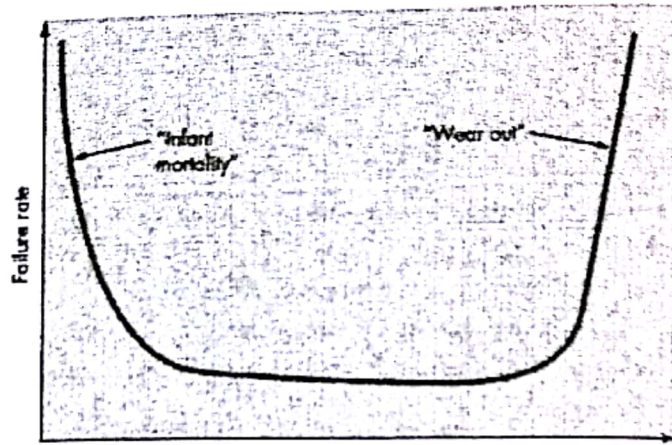
- i. What are Generic software products? (03 Marks)

- ii. Define the term Software Engineering. (04 Marks)

- iii. Name four types of application. (04 Marks)

iv. Briefly explain the following graph.

(06 Marks)



v. Briefly explain four essential characteristics of a good software.

(08 Marks)

(Total 25 Marks)

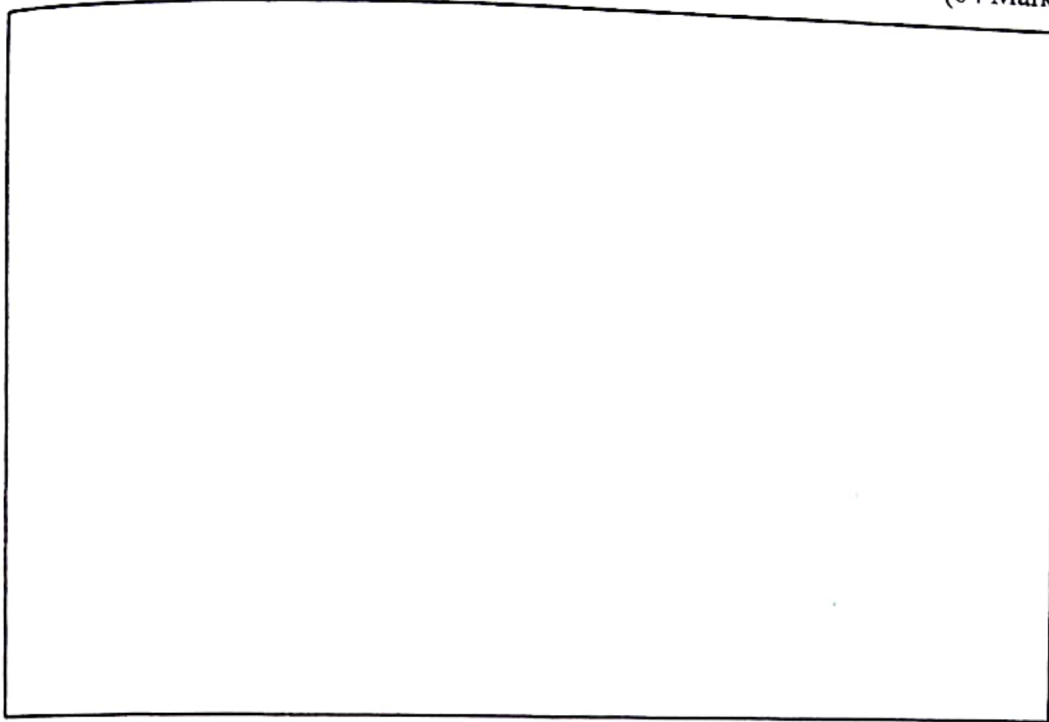
Q2)

I. What is Plan driven software process?

(03 Marks)

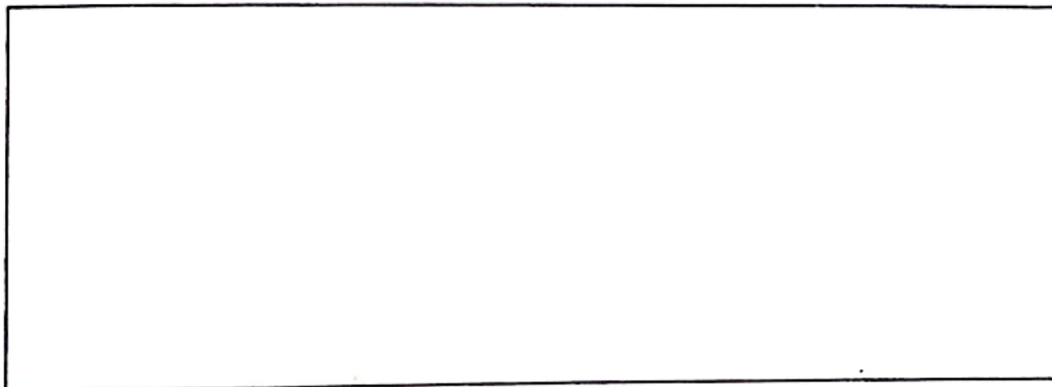
II. Draw the waterfall model with all the steps.

(04 Marks)



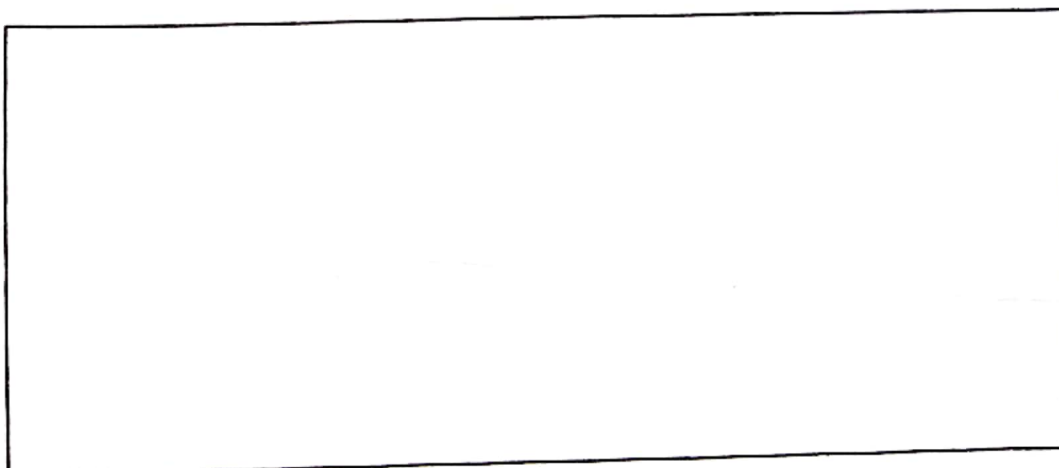
III. Name four sectors of Spiral model.

(04 Marks)



IV. Give three benefits of Software prototyping.

(06 Marks)



V. Briefly explain the following activities of the software process.

(08 Marks)

a. Specification

b. Design

c. Validation

d. Evolution

(Total 25 Marks)

## Part-B

Q3)

- I. What is meant by nonfunctional requirements? Give two examples. (04 Marks)
- II. Briefly explain requirement elicitation and analysis. (04 Marks)
- III. One of the most important goals of object oriented design is to have high cohesion and loose coupling classes. What is the purpose of this? (04 Marks)
- IV. Identify the functionalities of the following system and write down them.

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(05 Marks)

- V. Briefly explain four best practices for designing user interface (UI).

(08 Marks)

**(Total 25 Marks)**

Q4)

- I. Define the term "software architecture". Write down three architectural patterns. (05 Marks)
- II. You are recruited as a project manager to develop LMS (Learning Management System) to SLIATE. This LMS is used by the student, lecturers and administrators. Lecturers are upload learning materials as slide shows, pdf and video lessons. Students are logging to the system and download the learning materials. What is best software architectural pattern for the above problem? Justify your answer. (04 Marks)
- III. Compare the unit testing and integration testing. (04 Marks)
- IV. Briefly explain the following terms. (06 Marks)
  - a. Black box testing
  - b. White box testing
- V. The following table explains the activities, duration and dependencies.
  - a. Draw the Activity on Arrow diagram. (04 Marks)
  - b. Find the critical path of the project. (02 Marks)

Task	Predecessors Tasks (Dependencies)	Time (Weeks)
A	-	2
B	-	3
C	-	4
D	A	5
E	B	6
F	B	5
G	C	7
H	D,E	7
I	G	3
J	F,H,I	4

**(Total 25 Marks)**

Q5)

- I. What is the purpose of configuration management? (02 Marks)
- II. Name four reasons for software maintenance. (04 Marks)
- III. Briefly describe three types of maintenance. (06 Marks)
- IV. What is meant by Programme restructuring? (03 Marks)
- V. Briefly explain Software forward-engineering and Re-engineering. (04 Marks)
- VI. Briefly explain the following terms.
  - a. Code line and baseline
  - b. System building
  - c. Release management
 (06 Marks)

**(Total 25 Marks)**