



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 Second Semester Examination – 2022
HNDIT 4012-Software Engineering

Instructions

Answer Any five(05) Questions
All Question carry equal marks

Time: Three (03) hours
No. of question : 06
No of pages : 03

Q1)

- I. What is software engineering? (04 marks)
 - II. Briefly explain the following software products with an example. (06 marks)
 - a. Generic Product
 - b. Customized Product
 - III. Name four (04) application types. (04 marks)
 - IV. Explain the issues of professional responsibility in the modern software industry. (06 marks)
- (Total 20 marks)**

Q2)

- I. What is software process? Name Two (02) common activities. (04 marks)
- II. Write down three (03) main features of the following software process models. (06 marks)
 - a. Waterfall model
 - b. Prototype model
- III. Draw a sample diagram to represent main phases of spiral model. (04 marks)
- IV. How to use the following agile software techniques? (06 marks)
 - a. Extreme Programming
 - b. Scrum
 - c. Kanban Board

(Total 20 marks)

Q3)

- I. What is requirement analysis and specification in Software Development life Cycle? (04 marks)
 - II. Define the following terms related to software requirement specification.
 - a. Functional requirements.
 - b. Non-Functional requirements.
 - c. Constraints (06 marks)
 - III. Briefly explain the four (04) methods of requirements discovery. (04 marks)
 - IV. Software design tools are required to develop quality projects. Justify your answer with suitable examples. (06 marks)
- (Total 20 marks)**

Q4)

- I. What is software modularization? Write two (02) advantages of that. (04 marks)
 - II. Describe the following design principles. (06 marks)
 - a. High cohesion
 - b. Low coupling
 - III. What is software architecture? Name two (02) architectural patterns. (04 marks)
 - IV. Identify the suitable architectural pattern and draw the diagram for each of the following. (06 marks)
 - a. An automated ticket-issuing system used by passengers at a railway station.
 - b. A computer-controlled video conferencing system that allows video, audio, and computer data to be visible to several participants at the same time.
- (Total 20 marks)**

Q5)

- I. Briefly explain code walk-through and code inspection of module. (04 marks)
- II. Good software development organizations usually develop their own coding standards and guidelines. Write three (03) coding standard and guidelines. (06 marks)
- III. Briefly explain the following test approaches. (04 marks)
 - a. Black-box
 - b. White-box

- IV. Assume an application OTP number which accepts only six digits, less or more than six digits will not be accepted, and the application will redirect the user to the error page. Identify equivalence partitioning. (06 marks)

(Total 20 marks)

Q6)

- I. What is meant software quality? (04 marks)
- II. How to obtain following software quality certification. (06 marks)
- a. ISO 9000 model
 - b. SEI Capability Maturity model
- III. Briefly explain the following types of software maintenance. (04 marks)
- a. Corrective
 - b. Adaptive
- IV. Reports suggest that the cost of maintenance is high. A study on estimating software maintenance found that the cost of maintenance is as high as 67% of the cost of entire software process cycle. Are you agree with the statement? Justify your answer. (06 marks)

(Total 20 marks)