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 – 2015
HNDIT2311/IT3102- Principles of Software Engineering

Instructions:

Answer four questions.

All questions carry equal marks.   Time: Two hours

Question 01.

(i) What is the main difference between Current usefulness and Potential Usefulness in Bohem's Classification of software quality attributes?

[03 Marks]

(ii) Give two reasons why Software needs to be changed.   [04 Marks]

(iii) List four main differences in software engineering compared to other engineering disciplines.

[04 Marks]

(iv) List three qualities for each of the Current usefulness and Potential Usefulness.

[06 Marks]

(v) List four ways how software engineering provides solutions to above (iii).

[08 Marks]

[Total 25 Marks]

Question 02.

(i) Briefly explain three characteristics in software process model.   [06 Marks]

(ii) State three problems associated in:
   a) Waterfall Model

   b) RAD Model   [06 Marks]

(iii) List down four processes in RAD model.   [04 Marks]

(iv) Briefly describe the Spiral model.   [05 Marks]

(v) Briefly explain prototype and list down two techniques used in that model.

[04 Marks]

[Total 25 Marks]

Question 03.

(i)   What is feasibility study?   [02 Marks]

(ii)   What will technical software development staff find out after **"Requirement elicitation and analysis"?**   [04 Marks]

(iii)   At the end of the **requirements specification process,** what is the deliverable?
                                                                                          [02 Marks]

(iv)   The software requirements document is an official statement of what the system developers should implement. It should include both the user requirements for a system and a detailed specification of the system requirements.
         a) Identify three requirements of documents.   [03 Marks]
         b) List two readers for each of above (a).   [06 Marks]

(v)   What is requirement validation?   [05 Marks]

(vi)   During the requirements validation process, different types of checks should be carried out on requirements in the requirements document. List three of them.
                                                                                          [03 Marks]
                                                                              [Totai 25 Marks]

Question 04.

(i)   Briefly explain the following Object Oriented design concepts:

         a) Abstraction
         b) Polymorphism
         c) Encapsulation
         d) Modularity   [08 Marks]

(ii)   Why, High Cohesion and Low Coupling characteristics are important in designing a good software?   [04 Marks]

(iii)   Briefly explain the following software architecture models:
         a) Client Server
         b) Repository   [04 Marks]

(iv)   State five Interface design principles.   [05 Marks]

(v)   Draw a diagram showing conceptual view and a process view of the architecture of the following case study.

         A Computer-controlled video conferencing system allows video, audio and computer data to be visible to several participants at the same time. In this system, several servers manage and display the different types of media. Video frames need to be transmitted quickly and in synchrony but at relatively low resolution.

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Still picture, however must be maintained at a high resolution, so it is appropriate to maintain them on a separate server. [04 Marks]

[Total 25 Marks]

Question 05.

(i) Briefly explain the following terms:

    a) Configuration Management

    b) Version

    c) Release

    d) Configuration Management Plan [08 Marks]

(ii) Briefly explain the following three types of maintenance:

    a) Corrective

    b) Adaptive

    c) Perfective [06 Marks]

(iii) What is stress testing? Give an example. [03 Marks]

(iv) Network Diagram is the most interesting concept in project scheduling.

Activity	Predecessor	Duration (days)
A	Start	6
D	A	8
B	Start	3
E	B	5
C	Start	9
E	C	6
End	D	3
End	E	4

    a. Draw the activity network diagram for the above table. [05 Marks]

    b. Find the Critical Path. [03 Marks]

[Total 25 Marks]