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
First Year, Second Semester Examination - 2018
HNDIT 1212-System Analysis and Design

Instructions for Candidates:
Answer any four (04) questions
Non programmable calculators are allowed

No. of questions : 05
No. of pages : 04
Time : Two (02) hours

Question 01 [Total 25 Marks]

(i) Define 'Computer Based Information System' (CBIS). (03 Marks)

(ii) Describe the purpose of having an Information System in an organization. (03 Marks)

(iii) Mention four (04) stakeholders of the Information System of SLIATE. (04 Marks)

(iv) List two (02) problems arise in upgrading complex legacy systems. (04 Marks)

(v) Various types of Information Systems are being used by different levels of users in organizations.

    a. List three (03) management levels available in an organization. (03 Marks)

    b. Briefly explain four (04) types of information systems used by different management levels. (08 Marks)

Question 02 [Total 25 Marks]

(i) Briefly explain the responsibility of the System Analyst. (03 Marks)

(ii) Mention five (05) underlying principles for system development methodology. (05 Marks)

(iii) Write down the main phases of System Development Life Cycle (SDLC) in the correct order. (05 Marks)

(iv) In developing an Information System it is recommended to select a suitable life cycle model.

    a. Why do we need a formal system development life cycle model? (04 Marks)

b. Mention the phase which generates most of the errors in software projects.

(02 Marks)

(v) Propose the most appropriate SDLC model for each situation given below and justify your answer.

(06 Marks)

a. Customer requests to build a new type of system which creates a sophisticated virtual living space. Assume that this is the first application of this type.

b. Customer needs an ordinary library management system. Customer has a clear understanding of what the system must do and the requirements are stable.

c. Customer hopes to experience the system from the beginning, even though he has no clear understanding about the system requirements.

Question 03   [Total 25 Marks]

(i) Explain the difference in between evolutionary prototyping and throw-away prototyping models.   (04 Marks)

(ii) RAD has become a popular process model in Information System development.

a. Briefly explain the RAD model.   (03 Marks)

b. Explain two (02) problems arise with the RAD model.   (04 Marks)

(iii) What do you mean by the term 'Feasibility Study'?   (03 Marks)

(iv) Name four (04) feasibility tests you have to perform in developing an e-commerce web site.   (04 Marks)

(v) Dharmadasa & Sons are expecting a profitable investment in the next year. They wish to select project A or B for the said investment. They are much interested on the NPV of the investment. Expected cash flows of Projects A and B for the next five years are given as follows.

Year	Project A		Project B	
	Cash outflow	Cash inflow	Cash outflow	Cash inflow
1	5000	0	2000	1000
2	1000	2000	2000	2000
3	1000	3000	2000	4000
4	1000	4000	2000	4000
5	1000	5000	2000	4000

a. Considering the discount rate as 10%, calculate the NPV for the projects A and B.

(06 Marks)

b. Identify the best project to be invested in the next year.

(01 Mark)

(Consider that $PV=FV/(1+i)^n$)

Question 04   [Total 25 Marks]

(i)   Briefly explain 'System Proposal'.   (03 Marks)

(ii) Expand and briefly describe the abbreviation 'DFD' in process modelling. (03 Marks)

(iii) Mention three (03) types of illegal data flows in a DFD.   (03 Marks)

Read the following scenario.

Lanka Books (Pvt) Ltd is a mail order company that distribute books at discounted prices to its members. As soon as the Assistant receives the order form, he checks whether the sender is a member of it with the Member Registry. If the sender is not a member, the Assistant returns the order along with a membership application form. If the customer is a member, the Assistant verifies the ordered books by checking the Book Registry. Then the Assistant enters the ordered books and saves it to the Book Orders File. At the same time the Assistant also prints an invoice and shipping list for each order, which are forwarded to the Order Fulfillment Department for processing there.

(iv)

   a.   Identify the external entities of Lanka Books information system.   (02 marks)

   b.   Draw the Context Diagram   (04 Marks)

(v)

   a.   Identify three (03) sub processes of this system.   (03 Marks)

   b.   Identify the data stores of this system.   (03 Marks)

   c.   Draw the Top level DFD of Lanka Books Information System.   (04 marks)

Question 05   [Total 25 Marks]

(i)   For a software system, it is recommended to test in four levels.

   a.   List the four (04) levels of software testing in the correct order.   (05 Marks)

   b.   Briefly explain two (02) testing methods you mentioned above.   (04 marks)

(ii) State three (03) factors to be considered when choosing a standard off-the –shelf application package.   (03 Marks)

(iii)   Name three (03) major causes of system maintenance problems.   (03 Marks)

(iv)   Briefly describe the followings.   (04 Marks)

     a.   Test Automation

     b.   Pilot Operation method in file conversion

(v)   Software System maintenance activities can be divided into four kinds. Briefly explain three (03) of them,   (06 Marks)