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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)

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**Higher National Diploma in Information Technology**  
**First Year, Second Semester Examination – 2016**  
**HNDIT1212 /IT2005 – System Analysis and Design**

Instructions for Candidates:

No. of questions : 05

Answer any 4 questions

No. of pages : 03

All Questions carry equal marks

Time : Two hours (02 hours)

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**Question 01**

**[Total Marks 25]**

- (i) Define the term “Stakeholders” in the information system and give four examples. (06 Marks)
- (ii) State three duties of system analyst. (03 Marks)
- (iii) State four characteristics of ‘Legacy System’. (04 Marks)
- (iv) Briefly explain “System Development Life Cycle” and state two advantages of them. (06 Marks)
- (v) Information System can be classified according to the management levels in an organization. Briefly explain two types of operational level information systems. (06 Marks)

**Question 02**

**[Total Marks 25]**

- (i) List Main phases in system development life cycle. (03 Marks)
- (ii) Briefly explain the “Terms of Reference (TOR)”. (03 Marks)
- (iii) State three requirements discovery methods. (03 Marks)
- (iv) Elaborate Evolutionary Prototyping model over the Waterfall Development model (08 Marks)
- (v) Carefully read the following case study and select suitable software development life cycle model and justify your answer. (08 Marks)

“MyTrip railway reservation system is a powerful system because this railway carries about 0.6 million passenger reserved accommodation every day. The computerized passenger reservation systems facilitate the booking and cancellation of the tickets. The tickets can be booked or cancelled for journeys and one major thing is that railway employees are facilitated with a free of charge journey. Customer can book using counters or online. Counters are found on the railway stations and online booking can be made through internet using their credit cards.”

**Question 03**

**[Total Marks 25]**

- (i) Briefly explain “feasibility studies”. (03 Marks)
- (ii) State three examples for legal feasibility study areas in software development. (06 Marks)
- (iii) Giving examples, explain tangible item cost and intangible item cost. (06 Marks)
- (iv) Rainbow Company Ltd. expects to buy new machines for their productions. Two companies gave their proposal with machine capacity and their plan (Machine A and Machine B). Calculate the payback period of the two machines using the following cash flows and decide which new machine Rainbow Company should accept. Assume that the maximum payback period the company establishes is four years. (10 Marks)

Year	Machine A	Machine B
0	Rs. -5000.00	Rs.-2000.00
1	Rs.600.00	Rs. 500.00
2	Rs.1000.00	Rs. 1200.00
3	Rs.1500.00	Rs.1600.00
4	Rs.2000.00	Rs. 2000.00

**Question 04**

**[Total Marks 25]**

- (i) State two things which system designer has to do during the system design phase. (04 Marks)
- (ii) Methodology is one of the major components of system development. Explain term “Methodology”. (04 Marks)

(iii) Read the following case study and answer the questions.

City Hospital expects to establish a new software system to improve their efficiency and effectiveness. System consists following functions.

When admitting a patient to the hospital, the Reservation Clerk will check the availability of rooms using the Rooms Details file. He then updates both Rooms Details and Patient Details files. To make an appointment with a Consultant for channeling, patient meets the Clerk who uses and updates both Patient Details and Consultant Details files. Lab Clerk updates both Patient Details and Patient Reports Files. Cashier uses all the files to prepare bills when a patient is discharged from the Hospital and prepare payments to the consultants.

Administrator can view all the details of the hospital records. System can maintain consultants' information; details of patients who are admitted and also contains details of the patient who came back for checkups. Lab reports are generated from the system and bill details are calculated through the system.

a) Draw the Context diagram for the City Hospital Management system.

(07 Marks)

b) Draw the 0 level DFD (Data Flow Diagram) for above system.

(10 Marks)

#### Question 05

[Total Marks 25]

(i) Explain the term test automation. (03 Marks)

(ii) Briefly explain 'White box testing' and 'Black box testing'. (04 Marks)

(iii) State two kinds of maintenance activities. (02 Marks)

(iv) Source code may be in one of the following categories, Explain each of them.

(08 Marks)

a. Standard off- the -shelf package

b. Bespoke package

c. Amended standard package

d. standard package plus additions

(v) Briefly explain, file conversion method "Direct change over" with their advantages and disadvantages. (08 Marks)