

CSC – Systems Analysis

T038

Friday, 23/11/2018

08:30 – 11:30 AM

WORKFORCE DEVELOPMENT AUTHORITY



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**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2018,
TECHNICAL AND PROFESSIONAL STUDIES**

EXAM TITLE: SYSTEMS ANALYSIS

OPTION: Computer Science (CSC)

DURATION: 3hours

INSTRUCTIONS:

The paper is composed of **the following Sections:**

Section I: Sixteen (16) compulsory questions. 55 marks

Section II: Attempt any three (3) out of five questions. 30 marks

Section III: Attempt any one (1) out of three questions. 15 marks

Note:

Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.

Section I. Sixteen (16) Compulsory questions**55 marks**

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- 01.** Define the data model. **(3 marks)**
 - 02.** Explain the Entity relationship Diagram. **(3 marks)**
 - 03.** Explain the system specifications document. **(3 marks)**
 - 04.** Define a Context DFD and list three of its benefits. **(5 marks)**
 - 05.** Explain any two benefits and two disadvantages of Prototyping in systems development life cycle (SDLC). **(4 marks)**
 - 06.** Explain JAD. **(4 marks)**
 - 07.** List the elements of a Use Case. **(4 marks)**
 - 08.** Explain the importance of a context diagram. **(3 marks)**
 - 09.** Contrast Agile with Waterfall based methods. **(4 marks)**
 - 10.** Explain Timeboxing technique. **(3 marks)**
 - 11.** Explain legacy databases. **(4 marks)**
 - 12.** Explain the Content Awareness Principle in Interface Design. **(3 marks)**
 - 13.** What does “User Experience” refer to in Interface design? **(3 marks)**
 - 14.** Define the Interface Structure Design. **(3 marks)**
 - 15.** What are software requirements? **(3 marks)**
 - 16.** What is software scope? **(3 marks)**

Section II. Choose and answer any three (3) questions

30 marks

17. A. Mention five software analysis & design tools used.
 B. Clearly explain what happens during System Test. **(10 marks)**
18. Show how Employees, Works-in (e.g. Factory) and Department relationships represented in E-R model with suitable examples:
 i) Many-to-many, iii) One-To-Many,
 ii) Many-To-One, iv) One-To-One. **(10 marks)**
19. A) What is feasibility study of the project?
 B) Describe the types of feasibility of the project. **(10 marks)**
20. Explain five benefits and five disadvantages of using open-ended questions, and then five benefits and five disadvantages of using closed questions. **(10 marks)**
21. Observe the Use Case “Record the Offer” below and draw a corresponding DFD. **(10 marks)**

Actor: Salesperson

Description: This use case describes how the salesperson records a customer offer on a vehicle. The offer may be a new offer or a revision of a previously rejected offer.

Trigger: Customer decides to make an offer on a vehicle.

Type: External Temporal

Summary	Source	Outputs	Destination
Inputs			
Vehicle ID	Salesperson	Offer Pending Notice	Salesperson
Existing Pending Offer	Pending Offers datastore	Offer Summary	Customer
Offer Type	Salesperson	New Pending Offer	Pending Offer datastore
Offer ID	Salesperson	Pending Offer	Customer
Previous offer details	Rejected Offers datastore	Pending Offer Notice	Owner/Manager
Vehicle datastore	Vehicle details		
Customer details	Customer		
Offer details	Salesperson		

22. Discuss the following terminologies and provide useful examples in each case:

- i) Entity,
- ii) Entity Types,
- iii) Entity Sets,
- iv) Attributes,
- v) Key attributes of an Entity Type.

(15 marks)

23. Design a context Data Flow Diagram that shows Food Ordering System:

- It contains a process that represents the system to model, in this case, the "Food Ordering System".
- The system model should show the participants who will interact with the system which includes:
Supplier, Kitchen, Manager and Customer.
- Should indicate the communication of information exchange between the entities and the system.

(15 marks)

24. Explain the steps for building Entity Relationships Diagrams.

(15 marks)