



CICT PART II SECTION 3

SYSTEMS ANALYSIS AND DESIGN

TUESDAY: 26 November 2019.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

QUESTION ONE

- (a) A trainee systems analyst wishes to gather facts about a system using the questionnaire method. He is seeking your advice on how to construct a questionnaire.

Prepare five item construction guidelines for a questionnaire. (5 marks)

- (b) Approximately 75 per cent of the overall cost of software during the life of a system is spent on maintenance.

Examine five ways of reducing the need and cost of system maintenance. (5 marks)

- (c) ABC World is a small video rental store. The store purchases its video from a local supplier and lends video to customers for a fee.

A customer wishing to borrow a video provides the details of the video they desire, their membership card and payment. Payment is always done with a credit card. The customer returns the video to the store after watching it.

If a loaned video is overdue by a day, the customer's credit card is charged and a reminder letter is sent to him. Each day after that an extra charge on the card is made and each week a reminder letter is sent. This trend continues until either the customer returns the video or the charges are equal to the cost of replacing the video.

New customers fill out a form with their personal and credit card details. The counter staff then gives the new customer a membership card. Each new customer's form is added to the customer file.

The local video supplier sends a list of available titles. If an order is sent by ABC World, then the supplier sends the requested videos to the store. For each new video, a new stock form is completed and placed in the stock file.

Required:

Draw a level 1 data flow diagram to represent the above scenario. (10 marks)

(Total: 20 marks)

QUESTION TWO

- (a) Using two examples, describe how standards shape the design of internet-based systems. (4 marks)

- (b) Justify the use of object oriented analysis and design in systems development. (4 marks)

- (c) Examine six factors that trigger a need for an improved information systems project identification and selection. (6 marks)

- (d) Discuss six components of an organisation that a system analyst should put into consideration during systems requirements determination phase. (6 marks)

(Total: 20 marks)

QUESTION THREE

- (a) Prepare a typical interview guide that could be used to collect information systems requirements. (5 marks)

- (b) Formulate five guidelines that could be used when conducting a code walk through. (5 marks)

- (c) Distinguish between information systems and information technology. (4 marks)

- (d) Summarise six skills, knowledge and traits of a good systems analyst. (6 marks)

(Total: 20 marks)

QUESTION FOUR

- (a) Describe the feasibility analysis activities involved in the following phases:
 - (i) Scope definition. (2 marks)
 - (ii) Decision analysis. (2 marks)
 - (b) Discuss two items that are tested when conducting validation testing of an information system. (4 marks)
 - (c) Using a relevant example in each case, describe the following in the context of systems development:
 - (i) Methodology. (2 marks)
 - (ii) Model. (2 marks)
 - (iii) Tool. (2 marks)
 - (iv) Technique. (2 marks)
 - (d) Discuss four principles of information systems versioning during system development lifecycle. (4 marks)
- (Total: 20 marks)**

QUESTION FIVE

- (a) Examine three roles of an infrastructure analyst in the context of systems analysis and design. (3 marks)
 - (b) Using an example in each case, differentiate between a “physical system” and an “abstract system” in the context of systems analysis. (4 marks)
 - (c) Discuss three participants involved in a Joint Application Design (JAD) session. (6 marks)
 - (d) Examine two situations when prototyping is most useful for requirements determination. (4 marks)
 - (e) Using a real life scenario of your choice, illustrate a “conceptual data model” in the context of systems development. (3 marks)
- (Total: 20 marks)**
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