

KASNEB

CICT PART II SECTION 3

SYSTEMS ANALYSIS AND DESIGN

WEDNESDAY: 25 May 2016.

Time Allowed: 3 hours.

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

QUESTION ONE

- (a) Outline five reasons why an organisation should engage an external systems analyst during systems development. (5 marks)
- (b) Highlight five features of a poorly designed information system. (5 marks)
- (c) An airline has a "Safari Point" scheme for its regular travellers. Any passenger taking a flight with the airline is invited to become a member of the scheme by completing a simple form. Each time passengers complete a flight, they are credited with miles for the distance flown. If they have accumulated enough miles they may redeem them by taking a free flight with the airline. As it may take a long time to accumulate enough miles to take a free flight, the airline offers the option of purchasing "Safari Point" miles so that the passengers may top up their account to the required level to take a "free" flight. Passengers may leave the "Safari Point" scheme at any time they wish. The airline wishes to computerise the Safari Point scheme.

Required:

- (i) Describe four main objectives of the systems input design. (4 marks)
- (ii) Assess six possible purposes of system output for the above case. (6 marks)

(Total: 20 marks)

QUESTION TWO

- (a) Explain two issues that might cause system failure in each of the stages of the system development life cycle. (10 marks)
- (b) Highlight four reasons why change control is important during systems implementation. (4 marks)
- (c) Analyse three stages involved in structured walkthrough methodology for quality assurance in system development. (6 marks)

(Total: 20 marks)

QUESTION THREE

- (a) A population of around 5,000 people is served by XYZ Health Centre. The centre has receptionists who book appointments for patients.

You have been asked to analyse the work done at XYZ Health Centre in readiness for computerisation and have made the following observations:

- A patient can make an appointment for a consultation by calling the receptionist or in person.
- Receptionists need to check the booking schedule and add appointments to it.
- When a patient arrives for the appointment, the receptionist updates the booking schedule.
- When a patient is seen by a doctor, their record is retrieved and updated. The patient may need to make a further appointment.
- The doctor may write a letter referring the patient to the local hospital.
- If the doctor prescribes medication, a reference file is used to identify a suitable drug and dosage.

Required:

- (i) Draw a context diagram for the above scenario. (4 marks)
- (ii) Use a level 1 data flow diagram (DFD) to represent the above description. (8 marks)

- (b) In a university library, a member may have a maximum of three books on loan at any one time. To take a book on loan, the member takes the book(s) they require to the librarian. To process the loan, the librarian first locates the member on the system and then processes the loan of each book in turn.

Required:

Draw a flow chart for the processing of the loan of library books in the above scenario. (6 marks)

- (c) Highlight the benefits of soft systems methodology to a systems analyst. (2 marks)
(Total: 20 marks)

QUESTION FOUR

- (a) A business organisation has decided to base all future application development on a "structured methodology". However, it has to select one from a choice of several methodologies.

Required:

- (i) Discuss the critical requirements that you would consider before making the choice. (5 marks)
(ii) Assess the benefits that could be expected from the use of a structured methodology. (5 marks)
(b) Discuss five guidelines that could be used when designing a new logical system. (5 marks)
(c) Formulate five key questions that a systems analyst should ask when investigating an information system. (5 marks)
(Total: 20 marks)

QUESTION FIVE

- (a) Suggest three ways of achieving effective user involvement during the prototyping stage of system development. (3 marks)
(b) "Most systems are obsolescent the day they become operational".
With reference to the above statement, argue the case for system changes immediately after implementation. (4 marks)
(c) Describe three reasons for conducting systems analysis. (6 marks)
(d) Explain four main objectives of conducting system design. (4 marks)
(e) Highlight three areas a system analyst should consider when developing a cloud solution. (3 marks)
(Total: 20 marks)
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