KASNEB

CICT PART II SECTION 3

SYSTEMS ANALYSIS AND DESIGN

WEDNESDAY: 23 November 2016.   **Time Allowed: 3 hours.**

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

QUESTION ONE

(a)   Highlight four categories of analysts involved during information systems development.   (4 marks)

(b)   Citing four reasons, justify why an organisation should develop a new information system.   (4 marks)

(c)   Describe six ways a CASE tool could help to improve the quality of a system under development.   (6 marks)

(d)   Enumerate six benefits of using data flow diagrams (DFDs) as a functional analysis tool to a system analyst.

         (6 marks)
         (Total: 20 marks)

QUESTION TWO

(a)   Following the execution of a feasibility study, your company has decided to transfer its data processing needs to a local area network. The company's present hardware include:

-    A minicomputer that has come to the end of its useful life. This equipment is used to handle administrative tasks.

-    A small number of personal computers used for word processing and spreadsheet.

You have been asked to implement this project, prepare a plan to select the new system and ensure a smooth handover.

Required:

(i)   Describe the major tasks needed in order to effect the above change.   (5 marks)

(ii)   Generate terms of reference for the above project.   (5 marks)

(b)   Differentiate between "corrective maintenance" and "adaptive maintenance".   (2 marks)

(c)   You are employed as a systems analyst by a large motor cycle manufacturer. A project has just commenced to which you have been assigned. The investigation stage of the project has been started and previous fact finding interviews have been well documented.

You need to interview a specific group of people which had not been interviewed before. However, it turns out that the group is hostile and therefore unhelpful.

Required:

(i)   Identify four possible causes of their hostility.   (4 marks)

(ii)   For each of the causes identified in (c)(i) above, suggest an appropriate measure you would take in order to overcome the difficulty during analysis and design phases of the project.   (4 marks)

         (Total: 20 marks)

QUESTION THREE

(a)   The implementation stage in the system development life cycle involves different activities.

     Discuss six activities that should be considered in the implementation stage.   (6 marks)

(b)   Enumerate six factors affecting system development success.   (6 marks)

(c)   System implementation entails the development of a new system and putting it to use.

Required:
(i)   Highlight four challenges that might be encountered during system integration.   (4 marks)

(ii)   Describe two system development constraints.   (4 marks)
(Total: 20 marks)

QUESTION FOUR
(a)   Using an example in each case, distinguish between a "soft system" and "hard system".   (4 marks)

(b)   Differentiate between "database schema" and an "entity relationship diagram".   (4 marks)

(c)   Human computer interaction describes the relationship between computers and people who use them to perform their jobs.

Required:
Describe four human factors in interface design.   (4 marks)

(d)   Rapid Application Development (RAD) relies heavily on prototyping and user involvement.

Explain the four phases of RAD.   (8 marks)
(Total: 20 marks)

QUESTION FIVE
(a)   Distinguish between "prescriptive architecture" and "descriptive architecture".   (2 marks)

(b)   Operational manuals provide full documentation on the operational procedures necessary to run a system.

Examine five fundamental operational details that must be included in the operational manual.   (5 marks)

(c)   Summarise three challenges to requirement analysis.   (3 marks)

(d)   Three small driving schools have merged to form a bigger company. The new business now employs fifteen driving instructors and runs fifteen cars from a centralised office. There are currently 230 students registered for driving lessons and this number is steadily growing. The amount of paperwork generated on the business has been overwhelming and there is a clear need for a computerised system. The following business processes are to be included in the development of the proposed system:

Students register with the driving school either on telephone or by paying a personal visit to the office. Their details are kept in the students register. Once registered, the lesson schedule is checked and an instructor is allocated to that student. This lesson schedule is kept with the student details. Students usually book one lesson at a time and may do this by contracting the driving school office or by booking their next lesson with their instructor during a lesson. They pay the instructor at the beginning of each lesson. At the end of each day these bookings are recorded on the lesson schedule together with the recording in the payments book of payments made by the students. Each day, a list of lessons booked for each instructor including the student's name and address is printed and given to that instructor.

Required:
Draw a Level 1 Data Flow Diagram (DFD) for the above scenario.   (10 marks)
(Total: 20 marks)

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