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KASNEB

CICT PART II SECTION 3

SYSTEMS ANALYSIS AND DESIGN

PILOT PAPER

September 2015. **Time Allowed: 3 hours.**

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

QUESTION ONE

(a) Indicate five roles and responsibilities of a system analyst. (5 marks)

(b) Identify three stages of system development life cycle that a system analyst would typically be involved in. (3 marks)

(c) Using examples, differentiate between "soft system methodology" and "hard system methodology". (4 marks)

(d) Indicate information requirements for managers at the three main levels of management in an organisation. (6 marks)

(e) Highlight the functions of the following information systems:

(i) Transaction process system. (1 mark)

(ii) Management information system. (1 mark)

(Total: 20 marks)

QUESTION TWO

(a) (i) Distinguish between "waterfall" and "evolutionary" system development life cycle. (4 marks)

(ii) Choose which of the two approaches in (a) (i) above would be appropriate in a situation where the customer is impatient and result oriented. Justify your choice. (3 marks)

(iii) Outline four key principles of agile system development. (4 marks)

(b) Identify five characteristics of a good system design. (5 marks)

(c) You are the Technical Director of company XYZ. The company has just hired a system designer.

Required:
Formulate a job description for the system designer. (4 marks)

(Total: 20 marks)

QUESTION THREE

(a) Describe the following system conversion strategies:

(i) Direct. (1 mark)

(ii) Parallel. (1 mark)

(iii) Pilot. (1 mark)

(iv) Staged. (1 mark)

(b) Indicate the purpose of the following types of system testing:

(i) Integration testing. (1 mark)

(ii) Regression testing. (1 mark)

(iii) Acceptance testing. (1 mark)

(iv) Stress testing. (1 mark)

(c) Highlight two factors which can affect the ease of maintenance of a system. (2 marks)

(d) Explain four system maintenance strategies. (8 marks)

(e) Intruders can violate the integrity of an information system.

Required:
List two ways in which an organisation can secure information systems. (2 marks)
(Total: 20 marks)

QUESTION FOUR

(a) Feasibility study is an assessment of viability of an information system development project.

Required:

(i) Examine three main types of feasibility study. (6 marks)

(ii) "Feasibility study is never over".

Justify the above statement. (2 marks)

(b) Differentiate between class diagram and entity relationship diagram. (4 marks)

(c) (i) Give two reasons why requirement prioritisation is useful in the development of a system. (2 marks)

(ii) Define "prototype" and explain how a prototype can be used in requirement gathering. (2 marks)

(iii) Outline two advantages and two disadvantages of prototyping. (4 marks)
(Total: 20 marks)

QUESTION FIVE

(a) Identify five techniques for eliciting system requirements. (5 marks)

(b) Explain how the following UML diagrams relate to each other:

(i) Sequence diagram.
(ii) State chart diagram. (2 marks)

(c) Consider the following case study:

Golden City is a tennis club in Kivu. The club has a number of playing courts and most of the members of the club are local people. The club is opened daily from 10 a.m. to 8 p.m.

New members are approved and registered by the club manager. When registered, new members provide their name, address and telephone number and after registration, they are given a unique member number.

The club encourages its members to join teams, although each member can only belong to one team. When a member decides to join a team, he/she contacts a receptionist either by phone or at the club, and he/she will carry out the appropriate procedure.

Playing sessions can be booked by either a team leader or by an individual member. Each session belongs to specific price band according to its time and day of the week. The session booking may subsequently be cancelled by the person who booked it. In such a case the session will become available for booking.

Session records are created by the manager a few weeks in advance. Each session is identified by its date, time and court number. Session records are deleted six months after their dates.

Required:

(i) List four processes and four external entities that you would include on a top level data flow diagram (DFD) of Golden City Tennis Club. (8 marks)

(ii) List five requirements for a system to support Golden City Tennis Club's business processes. (5 marks)
(Total: 20 marks)

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