

Question 1 (Compulsory)

(30 marks)

- (a) What is a *systems request*? What is its relevance to the SDLC? [2]
- (b) Explain the *two* roles that prototypes may play in the system development life cycle. [2]
- (c)
 - (i) What is an *RFP*? [2]
 - (ii) How does an RFP differ from an RFQ? [2]
- (d)
 - (i) What does it mean for a system to be *feasible*. [1]
 - (ii) State, with justification, whether it is possible for a project to be feasible initially, only to be rejected later in the development cycle? [2]
- (e) List *five* decisions that management might reach at the end of the systems analysis phase. [5]
- (f) Describe the information requirements of the following organizational levels of a typical business.
 - (i) Operational personnel.
 - (ii) Lower management.
 - (iii) Middle management.
 - (iv) Upper management. [4]
- (g) Define the term *project scope*. [1]
- (h) Define the term *data dictionary*. [1]

***Question 1 continues on the following page.
Please turn over***

- (i) “Super Shoes” is a retailing company dealing in ladies' and men's shoes. Currently, “Super Shoes” places an order with the wholesaler every month, who will then deliver the items within a week. Each month the demand is projected to be higher than the previous month by 2% except during festive months. The manager calculates the projected sales for each month taking into consideration either a 2% growth in sales or a 4% to 8% growth depending on what time of the year it is. He then places the order with the wholesaler for the goods. If the goods have been on the shelf for more than two months they are considered 'unsold'. They are then offered for clearance sales at these special outlets. During festive months, however, festive sales are conducted at all outlets of the store. During the months when 'unsold' are recorded for any of the items, the orders for these items are adjusted by reducing the quantity ordered from the wholesaler.

Design a simple decision table to describe the above conditions and actions. [8]

Please turn over

Question 2

- (a)
 - (i) Define the term total cost of ownership (TCO). [1]
 - (ii) Why is TCO important? [2]
- (b) TCO is one issue that an analyst should consider before selecting an application architecture. Name *four* others. [4]
- (c) What is a client-server architecture? [1]
- (d) Describe how the following characteristics differ between client/server systems and traditional mainframe systems.
 - (i) Basic architecture. [1]
 - (ii) Data storage options. [1]
 - (iii) Processing options. [1]
- (e) Describe each of the following patterns in which a LAN or WAN network can be configured.
 - (i) Hierarchical network. [1]
 - (ii) Bus network. [1]
 - (iii) Star network. [1]
 - (iv) Ring network. [1]

Please turn over

Question 3

- (a) Define the following terms, and give an example of each.
- (i) Class. [2]
 - (ii) Instance. [2]
 - (iii) Subclass. [2]
- (b) Describe, and give examples of, each of the following.
- (i) Class diagrams. [2]
 - (ii) Sequence diagrams. [2]
 - (iii) Activity diagrams. [2]
- (c)
- (i) What is the *weakest* type of relationship between objects and classes? [1]
 - (ii) When does the type of relationship of part (i) occur? [1]
 - (iii) Give an example of the relationship of part (i). [1]

Please turn over

Question 4

- (a) (i) What is a *code*? [1]
- (ii) List *two* purposes for which codes are used. [2]
- (b) After you begin working on the systems design phase, what situations might cause you to return to the systems analysis phase? Is this a common occurrence? If so, why; if not, why not? [4]
- (c) Some systems analysts argue the following:
- "You must give users what they ask for. If they want long reports with reams of data, then that is what you give them. Otherwise, users will be unhappy and feel that you are trying to tell them how to do their jobs."
- Others argue the following:
- "The systems analyst should dictate to users what information can be obtained from the system. If you listen to users, you'll never get anywhere, because they don't really know what they want and don't understand information systems."
- (i) What do you think of the first of these arguments? [3]
- (ii) What do you think of the second of these arguments? [3]
- (iii) Which (if any) of these arguments do you support? [2]

Please turn over

Question 5

- (a) (i) What is a *DBMS*? [1]
- (ii) Interfaces for users, database administrators, and related systems count as one component of a DBMS. List *three* others. [3]
- (b) (i) What is a *DBMS schema*? [1]
- (ii) What is a *subschema*? [1]
- (c) Explain the difference between a *logical record* and a *physical record*. [2]
- (d) (i) When is a record design in *first normal form*? [1]
- (ii) How do you convert an unnormalized record design to 1NF? [1]
- (e) Consider an automobile dealership that maintains an inventory system of cars and trucks in stock at its three locations. Record fields exist for stock number, vehicle identification number, make, model, year, color, and invoice cost. Identify the possible candidate keys, the likely primary key, a probable foreign key, and potential secondary keys. Justify your choices. [5]

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