

Section 1: 33 Marks - Short Answer – 50 Minutes

1. Information systems can be categorized into different types based on the job they fulfill in an organization. Describe each of the following:

a. Decision Support System

Often managers need help in making decisions and they use they might use a DSS. The simplest DSS is a spreadsheet that is used to test out different scenarios by asking 'what-if-questions'. (Fitzpatrick page 25)

b. Expert System

Expert systems are used on a day-to-day basis to automate problem solving in different ways. Expert systems have stored in them the knowledge of an expert in a particular area such as prescribing medicine, finding problems in motors, locating minerals, diagnosing diseases, analyzing stock market information, and the writing of insurance policies. (Fitzpatrick page 24)

c. Transaction Processing System

The most fundamental information system in business organizations is a TPS. These systems record and keep track of all the data involved in transactions such as sales and production. (Fitzpatrick page 23)

3x2=6 marks

2. List the five phases of the system development life cycle.

- a. Analysis
- b. Design
- c. Development
- d. Implementation
- e. Evaluation

5 Marks

3. A range of factors promote organizational change.

a. Identify **one** area that provides impetus for change

Often problems arise in organizations that cause the organizations aims and objectives not to be achieved.

b. Give a detailed example of this factor that promoted change

There is an immediate problem that prevents a product or service being provided adequately eg A supply company may not be getting their catalogue to their retail outlets early enough.

1+2=3 Marks

4. System analysis is considered by some to be the most important phase of the SDLC.

a. Describe the purpose of system analysis

A detailed system analysis of the current system requires data to be acquired to establish the capabilities and deficiencies of the current system. (Fitzpatrick p 106)

b. Explain why it is considered so important

The rest of the SDLC is based on the Analysis phase. If the analysis is not done correctly, unnecessary time and cost will be wasted.

2+2=4 Marks

5. During analysis the system analyst must collect data and used a range of collection methods.

a. Identify **one** data collection method

Interviews, observations, surveys and questionnaires, collecting sample documents and files, researching similar systems. (Fitzpatrick pp 107,108)

b. List **one** advantage and **one** disadvantage of this method

Advantage: Interviews: further information can be elicited.

Disadvantage: Interview: Can be time consuming and/or inconvenient for the interviewee.

1+2=3 Marks

6. List **two** tools that could be used to document a system

Context diagrams, data flow diagrams, data dictionaries, flow charts, decision tables, decision trees, grid charts, structured English, IPO charts, hierarchy charts, structure charts. (Fitzpatrick p109)

2 Marks

7. During the initial phases of the SDLC a range of alternative designs or options would be presented to the organization's management. They would assess these against a range of indicators and factors to measure how beneficial or practical the development of an information system would be to the organization

a. Identify **one** category they would use to assess this feasibility

Operational, economic, technical, developmental, conversion method, efficiency objectives, effectiveness objectives. (Fitzpatrick pp100,101 and 109)

b. Describe what they would be assessing in that area.

Operational feasibility determines whether a project can be put into place. It also looks at how the people will be affected and whether there will be unintentional effects that may occur as a consequence of the change.

1+2=3 marks

8. a. Name one phase of the SDLC where the use of a context diagram would be appropriate.

Analysis phase or Design phase

b. Explain the purpose of a context diagram.

A context diagram is the highest level of a data flow diagram. It gives a general description of the system and indicates the relationship between the system and the external entities.

1+2=3 marks

9. How does a physical design differ from a logical design?

The logical design consists of the details of what the new system should do. The physical design is a description of how the aims and objectives are to be achieved. (Fitzpatrick page 144)

2 marks

10. State two reasons why a programmer should include internal documentation when writing programs

Internal documentation may include a description of the variables and file and data structures used. This would assist in maintaining or updating the program.

Internal documentation might be used to explain lines of code that are not easily understood. This could aid a programmer, other than the author, who may need to modify the program. (Fitzpatrick page 11)

2 marks

SECTION 2 Part A - Analysis

1. Identify the information problem(s) faced by Zoom Merchandise current information system.

Customers calculate the total of their order and this is not always correct.

The figures on the weekly reports do not match the amounts going into the bank

The long turn-around time between placing an order and receiving the goods has customers complaining.

Products names on the printer order are inconsistent

Communication between the departments is disorganized

3 Marks

2. Discuss the impetus for change within Zoom Merchandise.

The company's influence has spread throughout Australia, and has growing interest from overseas enthusiasts. The company's management see that this as a prime opportunity to expand their business using newer, efficient, and effective methods of online merchandising. The current system does not cater for this possibility.

3 Marks

3.
 - a. Identify **three data sources** that could be used during system analysis and design, **one** has been provided for you.
 - b. Describe the **data** each source will provide.
 - c. Describe the best **method to collect data** from that source. Use **different** methods for each group.

Data Source	Data provided	Collection method
Customers	Ease of ordering merchandise. Satisfaction with range and quality of merchandise. Value for money.	Survey via return coupon or phone (when ordering)
Staff	Areas of customer complaints. Number of customer complaints. Problems with current system.	Interview staff, probably as a group ('brainstorm session')
Management	Areas of the company that are most profitable and those that are least profitable.	Financial reports

8 (1+1, 1+1+1, 1+1+1) Marks

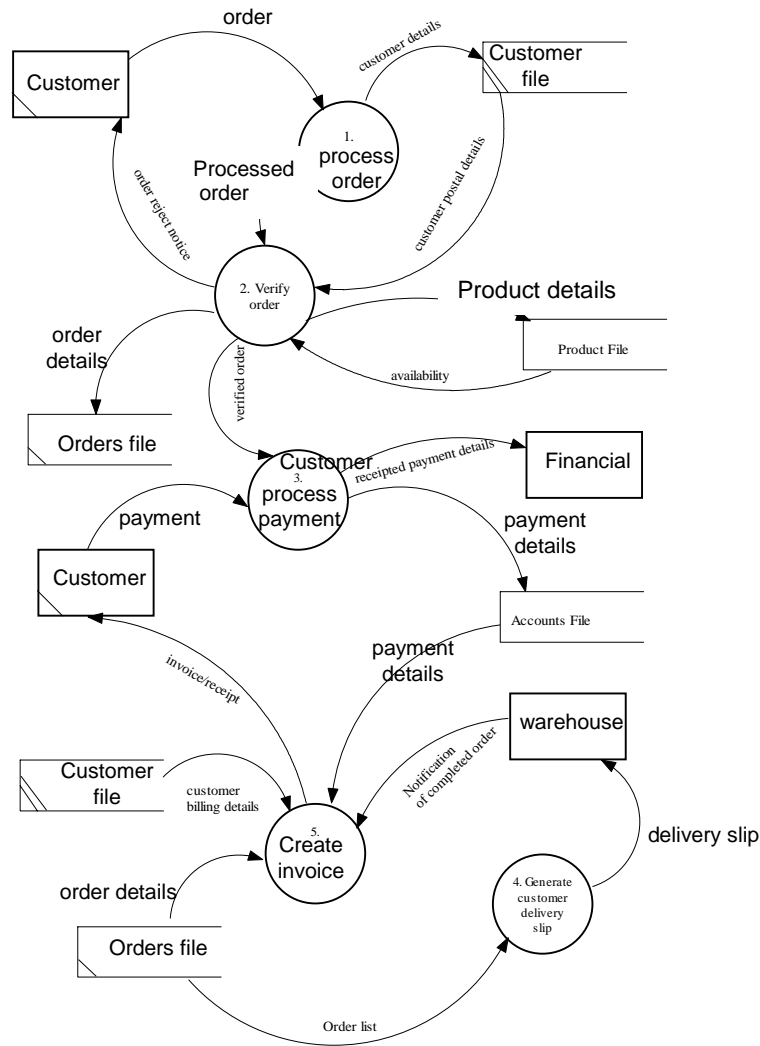
SECTION 2 Part B – Design

1.
 - a. State **three** system goals that would help achieve these organization goals.
 - b. State **three** system objectives for each system goal.
 (The system analyst has identified the following as **organizational goals**:
 1. To supply the racing and car enthusiast community with a range of high quality racing and vehicular merchandise
 2. To ensure efficient quality customer service
 3. To ensure accurate and prudent financial management
 4. To provide accurate and timely product information to local and international members of the racing and car enthusiast community.)

System Goal	System Objectives
Example: System Goal: <i>To ensure system data integrity and security</i>	Example: Objective 1: <i>to have an accurate back up of the customer database at all times</i> Objective 2: <i>all users to have usernames and passwords</i>
System Goal 1: <i>To ensure the customers are satisfied with the quality of the products offered.</i>	Objective 1. <i>All products to be manufactured by a reputable supplier</i> Objective 2 <i>Customers are able to exchange items that they are not entirely satisfied with</i>
System Goal 2: <i>To ensure that customer orders are processed at the fastest possible rate.</i>	Objective 1 <i>To dispatch all orders within 24 hours of the receipt of the order</i> Objective 2 <i>To compensate customers who do not receive their order in the specified time by giving a discount on their next order</i>
System Goal 3: <i>To ensure that the data entered into the system is accurate.</i>	Objective 1 <i>To validate electronically as much the of data as it is input</i> Objective 2 <i>To compare projected income with actual income</i>

9 (1+2, 1+2, 1+2)Marks

2. Fill in the blanks on the data flow diagram for the proposed system.



20 Marks

3. Consider the customer file and construct a simple data table.

Data Item	Description	Characteristics
<i>Eg Firstname</i>	<i>First name of customer</i>	<i>String 20 char</i>
<i>Surname</i>	<i>The customer's surname</i>	<i>X(15)</i>
<i>Street_address</i>	<i>The customer's street address</i>	<i>X(30)</i>
<i>Suburb</i>	<i>The customer's suburb or town</i>	<i>X(25)</i>
<i>State</i>	<i>The customer's state or county</i>	<i>X(30)</i>
<i>Postcode</i>	<i>The customer's postcode or zip code</i>	<i>9999</i>
<i>Country</i>	<i>The customer's country</i>	<i>X(30)</i>
<i>Payment_method</i>	<i>Payment method – Visa or Mastercard</i>	<i>X(10)</i>
<i>Credit_card_number</i>	<i>CC number</i>	<i>9(16)</i>
<i>CC_expiry_date</i>	<i>CC expiry date</i>	<i>9999</i>
<i>Customer_ID_number</i>	<i>Unique identity number (the key field)</i>	<i>9(8)</i>
<i>Email address</i>	<i>Customer's email address</i>	<i>X(25)</i>
<i>Password</i>	<i>Password to validate email address</i>	<i>X(6)</i>

8 Marks

4. Describe the key networking hardware and software that will be needed by Zoom to implement this new online ordering system.

Hardware/Software	Purpose
server	To process data and manage the workstations
Workstations (PCs) incl k/board, VDU, mouse	For the input of data and output of information
NICs and cabling	So that the workstations can be connected to the server
HDDs	For the storage of data and to hold OS/startup on workstations
OS on server and PCs	So that the workstations can run applications s/ware and server can manage users and peripherals
Internet connection (ISP), modem, cables, dedicated phone line	To provide an on-line system
Firewall (h/ware & s/ware)	To protect the system from potential hackers
Printer/s	For printing orders (as a backup), financial reports, warehouse invoices etc
Backup h/ware & s/ware	All customer & product data needs to be backed up
Applications s/ware	A RDBMS for managing customer DB, an accounting program eg MYOB for managing the finances, a secure financial transaction program to enable secure transmission of credit card nos. Email s/ware (eg Outlook)

10 Marks

5. For the following system objective:

Objective 1: to have an accurate back up of the customer database at all times

- a. Identify **two** possible hardware/software solutions

Hardware/Software Solution 1	Hardware/Software Solution 2
Tape drive, tapes, drivers (s/ware) for the tape drive, backup/scheduling software	CD burner, CDs, CD burner s/ware eg Nero, scheduling s/ware for automatic backup

4 Marks

- b. Using the four feasibility factors compare both alternatives

Feasibility	Solution 1	Solution 2
Economic	More expensive for both tape drive and tapes	CD-R/W are cheaper at about \$2 each cf tapes at \$25 each
Operational	More difficult to restore data from tape	Data easily restored from CD
Technical	Far greater capacity than CD (up to 80Gb)	Limit of 650Mb of data
Scheduling	Takes far longer to backup data	

4 Marks

- c. Recommend **one** solution

Solution 2. Most likely the cheaper of the two alternatives and also far easier to restore the system in case of a 'crash'. The main limitation is that the CD capacity is only 650Mb.

3 Marks

6. For the new online ordering system develop three criteria that will be used to evaluate the new system.

Criterion 1: **Economic** – has income increased as a result of offering the option of ordering online

Criterion 2: **Operational** – has the number of customer complaints been reduced.

Criterion 3: **Operational/scheduling** – has the time taken for an order to processed been reduced

3 Marks