



| | |
|----------|--------------------------------|
| SUBJECT: | Information Technology |
| DATE: | 5 th September 2023 |
| TIME: | 9:00 a.m. to 12:05 p.m. |

Directions to Candidates

Workings are considered as part of the answer and must be shown.

SECTION A: COMPUTING PRINCIPLES

Answer Question 1 and any other FOUR questions from this section.

This question is compulsory.

1. A music shop utilises a database system for information purposes. The music shop's database has information related to the instruments present in the shop such as the type of instrument, the brand and their retail price. It also has information related to the suppliers of instruments such as their name and location. Moreover, the shop owner also keeps a record of its clients (i.e. those who have done some purchase from the shop). Client details such as name, surname and contact number are kept. The shop owner also keeps track of all the client's orders including the order id, date and time.

- a. Draw an Entity-Relationship (E-R) diagram for the above scenario. (6)
- b. Describe **ONE** of the relationships' cardinalities used in the E-R diagram drawn for part 1a. (1)
- c. The E-R diagram is then converted to SQL code. For this conversion both Data Description Language and Data Manipulation Language were used:
 - i. Define Data Description Language. (1)
 - ii. Define Data Manipulation Language. (1)

The music shop has created a website to advertise its instruments. For this purpose, HTML and Javascript were used.

- d. Define HTML. (1)
- e. Why was Javascript required in the above-mentioned scenario? (1)
- f. Describe **TWO** pages which might be present in the music shop's website. (2)
- g. Mention **ONE** mode of accessing the website which encourages mobility. (1)
- h. The owner of the music shop is aware that malware might be present when making use of the Internet. Mention **TWO** types of malware and **ONE** possible solution for **each** malware specified. (4)

(Total: 18 marks)

Please turn the page.

2. Glass Onion Ltd uses a payroll system to calculate the salaries of its employees. Each employee is allocated an Employee ID as shown below.

| Employee ID | Employee Surname | Employee Name |
|-------------|------------------|---------------|
| 123 | Borg | Philip |
| 345 | Pace | Nathaniel |

- a. By referring to the above table, explain what is meant by
- i. data; (1)
 - ii. information. (1)
- b. Describe how each of the following could be used to validate an Employee ID.
- i. Range check; (1)
 - ii. Lookup table. (1)
- c. Describe **TWO** verification methods that can be used to detect errors. (2)
- d. An employee complains that this month's payslip is inaccurate because the overtime hours have been added up incorrectly. Describe **TWO** other ways in which the quality of information might be unsatisfactory. (2)

(Total: 8 marks)

3. WWAB eye clinic have replaced their standalone computers with a network. The clinic will make use of both LAN and WAN.

- a. Mention **TWO** advantages of a network over standalone computers. (2)
- b. Explain what is a peer-to-peer network. (1)
- c. Mention an alternative to a peer-to-peer network. (1)
- d. Communication standards are required when data is transmitted over a network. Explain the need for communication standards. (1)
- e. Mention the **TWO** software categories that are installed on the computers. (1)
- f. Give an example for **each** software category. (2)

(Total: 8 marks)

4. During system review, it is reported that queries are taking a long time to run and that a particular report does not display the expected information.

- a. Define data query language. (2)
- b. Name and describe **TWO** types of software maintenance which will be required in this case. (4)
- c. Describe **ONE** other reason why the system might require software maintenance. (1)

During maintenance, a new module is added.

- d. Describe the testing which will be required in this case. (1)

(Total: 8 marks)

5. A decision support system to plan e-grocery deliveries is used by a supermarket chain. This system uses internal and external sources of information.
- a. Name and explain **ONE** internal source of information that could be used. (1)
 - b. Name and explain **ONE** external sources of information that could be used. (1)
 - c. Describe how this system might assist decision making at the Strategic, Tactical and Operational levels within the supermarket. In the description, give **TWO** examples for each level. (6)
- (Total: 8 marks)**
6. The specification for a PC includes 8GB RAM and 8MB cache memory.
- a. Describe the purpose of RAM and cache memory. (2)
 - b. The PC comes already installed with an operating system and application software.
 - i. What is the difference between an operating system and an application software? Give an example of each. (4)
 - ii. State **TWO** functions of the operating system. (2)
- (Total: 8 marks)**
7. E-business is a huge field and in the digital age, the term e-business can mean different things in different industries.
- a. Define e-commerce. (1)
 - b. Name and explain using examples the different types of e-commerce. (4)
 - c. Define e-marketing. (1)
 - d. Give **TWO** examples of e-markets. (2)
- (Total: 8 marks)**

Please turn the page.

SECTION B: HUMAN COMMUNICATION AND BUSINESS ORGANISATON

Answer Question 1 and ONE other question from this section.

This question is compulsory.

1. A restaurant which has been in business for numerous years is closing its doors next month. The restaurant's management wanted to thank all of its clients and inform them about this decision. For this purpose, written communication was sent to all regular customers.
 - a. Mention and explain **TWO** advantages and **TWO** disadvantages of written communication. (2)
 - b. List **FOUR** examples of written media which the restaurant's management might have used.(2)
 - c. State **TWO** technologies related to written communication which might have been used by the restaurant's management for the dispersion of information to clients. (1)
 - d. Mention **TWO** advantages associated with **each** technology stated in part 1c. (4)
 - e. Mention **TWO** other communication mechanisms apart from written communication, which the restaurant could have used to inform their clients. (1)

(Total: 10 marks)

Answer ONE question from 2 and 3.

2. One of the main functional areas of a beverage company is the production department. This department is responsible for the manufacturing of the final product i.e. producing beverages, pouring such beverages into their corresponding container and attaching labels, to name a few.
 - a. Apart from the production department, mention **FOUR** other functional areas/department present in the company. (2)
 - b. Describe the work carried out by **each** functional area/department mentioned in part 2a. (4)
 - c. Mention **ONE** employee associated with **each** department specified in part 2a and describe his/her duty or responsibility. (4)

(Total: 10 marks)

3. 'XYZ Pharma', a pharmaceutical company, has just brought a new payroll software. The effected employees were notified about the introduction of such a software and are expected to start using this new software from next week onwards.
 - a. Apart from the introduction of new software, mention **TWO** other factors which might lead to change in organisations. (2)
 - b. Mention and describe **FOUR** factors which should be kept in mind by 'XYZ Pharma' when managing change. (4)
 - c. Some of the effected employees were used to the old software and provided resistance to such change. List **TWO** mechanisms which can be employed by the company's management to overcome this resistance to change. (2)
 - d. Communication at 'XYZ Pharma' takes place in a downward manner.
 - i. Define downward communication. (1)
 - ii. Differentiate between downward and upward communication. (1)

(Total: 10 marks)