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| SUBJECT: | **Information Technology** |
| DATE: | 26th April 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 company which rents male suits has a database management system (DBMS) to keep track of all the company's products and transactions. The DBMS stores information related to the clients, suppliers as well as information related to the suits themselves. Moreover, it also holds a record of all transactions taking place within the company every time a client rents a particular suit.

   a. What is the role of the Database Administrator (DBA)? (1)

   b. List **FOUR** entities required for the above-mentioned scenario. (2)

   c. Indicate **ONE** suitable primary key for **each** entity listed in part b. (2)

   d. Write down **TWO** other attributes (apart from the primary key listed in part c for **each** entity specified in part b. (4)


   To cater for a large number of clients, the company has developed an online presence. In such a case, multiple Internet protocols are employed such as for example the SMTP.

   e. What is SMTP used for? (1)

   f. Define **TWO** other Internet protocols apart from SMTP which might be used by the company. (2)

   g. Mention **FOUR** other Internet utilities, apart from the WWW, which might be used by the company. (2)

   h. For **each** Internet utility mentioned in part g, list **ONE** advantage and **ONE** disadvantage. (4)

   **(Total: 18 marks)**

**Answer any FOUR questions from questions 2, 3, 4, 5, 6 and 7.**

2. To apply for a home insurance, applicants need to provide information about their property by completing an on-line form.

   a. Explain how this form can be used as a direct data source and an indirect data source. (2)

   b. Describe **ONE** advantage and **ONE** disadvantage of using an indirect data source. (2)

   The on-line form includes both data validation and data verification.

   c. Describe **TWO** different types of data validation which can be applied. (2)

   d. Explain the purpose of the data verification methods chosen. (2)

   **(Total: 8 marks)**

3. Health centres make use of ICT in a number of different ways. For good financial planning, the manager in a health centre makes use of a spreadsheet.

   a. Describe **TWO** main features of spreadsheet software which make it suitable in this case. (2)

   The health centre wants to keep its data secure.

   b. Identify **TWO** reasons why passwords may **not** be effective. (2)

   c. Explain how access rights could be used to keep patient records secure. (2)

   d. Staff at the health centre must comply with ICT legislation. Name the main features of **TWO** legislation Acts specifically relating to ICT. (2)

   **(Total: 8 marks)**

4. BeeStees runs an event planning business organisation. Events include parties, exhibitions and conferences. The organisation requires new software to keep its business up to date.

   a. Name an advantage of choosing off-the-shelf software. (1)

   The organisation decides to go for a custom-made system.

   b. Name **TWO** factors which should be taken into account when deciding the feasibility of the proposed system. (2)

   c. Describe **THREE** activities that take place during the design stage. (3)

   d. Documentation will be produced for the new system. Describe **ONE** type of documentation. (2)

   **(Total: 8 marks)**

5. BikeDesigns is a company that sells custom-designed bikes online. The company uses a client server network.

    a. Describe the main features of a client server network.     (4)

    b. The network uses wireless communication. Describe **TWO** advantages to the company of using wireless communication.     (2)

    Parity bits are used to detect error during data transmission over the network.

    c. i. If even parity is being used, explain the error in the following byte:

            1 0 1 0 1 0 1 1     (1)

      ii. Name **ONE** other way of detecting errors in data transmission.     (1)

**(Total: 8 marks)**

6. A college teacher uses an interactive whiteboard to present a lesson to students.

    a. Describe **TWO** main features of an interactive whiteboard.     (2)

    b. The teacher saves a copy of the lesson on a USB pendrive.  Identify **TWO** features of a USB pendrive which make it suitable for this purpose.     (2)

    c. Students complete a multiple-choice test using an OMR sheet when the lesson is over. Describe **TWO** advantages of using OMR in this case.     (2)

    d. The college uses a multi-user operating system. Explain the purpose of a multi-user operating system.     (2)

**(Total: 8 marks)**

7. Supermarkets use Management Information Systems (MIS) to assist in decision-making.

    a. Describe the **TWO** main features of a typical MIS.     (2)

    b. Describe three levels of decision-making.     (6)

**(Total: 8 marks)**

**SECTION B: HUMAN COMMUNICATION AND BUSINESS ORGANISATON**

**Answer Question 1 and ONE other question from this section.**

**This question is compulsory.**

1. A newly opened stationery is constructing a campaign for advertising purposes. Multiple posters are set up across various schools and youth centres so as to encourage students to buy from this stationery.

    a. What type of communication is being used in the above-mentioned scenario? (1)

    b. Mention **FOUR** other examples apart from posters which might be used by the stationery, and which fall under the communication category stated in part a. (2)

    c. Mention **TWO** technologies related to the communication category stated in part a which might have been used by the stationery during their advertising campaign. (1)

    d. List **TWO** features associated with **each** of the technologies specified in part c. (4)

    e. Apart from the one specified in part a, mention **ONE** other form of communication which the stationery could have used in the advertising campaign. List **TWO** examples of such communication. (2)

    **(Total: 10 marks)**

**Answer ONE question from 2 and 3.**

2. One employee of an insurance company is unhappy in his workplace. He feels that the customers are not being provided with the best level of customer service. Thus, he asked one of his colleagues whether he wanted to open up a new company managed by both of them.

    a. What is this type of company referred to? (1)

    b. Mention **THREE** advantages and **THREE** disadvantages of such a company. (3)

    c. List **TWO** other types of organisations apart from the one mentioned in part a which the employee might have considered. (1)

    d. For **each** type of organisation listed in part c state:
       i. **ONE** advantage; (1)
       ii. **ONE** disadvantage. (1)

    e. The employee mentioned in the above scenario is more inclined towards establishing a formal organisation. However, he is aware that an informal organisation might also be an option. Differentiate between formal and informal organisations. (3)

    **(Total: 10 marks)**

3.  A group of individuals are discussing the possibility of opening a new gaming company. They are brainstorming ideas to determine the organisational structure of the company and other essential details.

    a. Within this context:
       i.  mention **FOUR** modes how an organisation can be departmentalised;      (2)
      ii. explain and describe **each** mode mentioned in part ai.      (4)

    b. Differentiate between the role of the Chief Information Officer (CIO) and Chief Security Officer (CSO) within this company.      (2)

    c. The type of organisation being formulated has a centralised organisational structure.
       i.  Describe a centralised organisational structure;      (1)
      ii. Explain how this differs from a decentralised organisational structure.      (1)

**(Total: 10 marks)**