INSTRUCTIONS TO CANDIDATES

• Do not open this examination paper until instructed to do so.
• Section A: answer all the questions.
• Section B: answer all the questions.
Answer all the questions.

1. An organization has to determine the level of security required to prevent theft of valuable data. State two factors that should be considered in this determination. [2 marks]

2. Outline the application of CASE tools. [2 marks]

3. (a) Outline the principal characteristics of online (interactive) processing. [2 marks]

   (b) State two applications of online (interactive) processing. [2 marks]

4. Outline what is meant by syntax errors. [2 marks]

5. Outline two features of a feasibility report. [4 marks]

6. (a) Explain the function of cache memory. [3 marks]

   (b) Outline the need for virtual memory. [3 marks]

7. State one advantage and one disadvantage of direct access. [2 marks]

8. Discuss the advantages of modularity in designing a solution to problems. [4 marks]

9. Outline the function of an interpreter. [2 marks]

10. Outline the need for data compression. [2 marks]
SECTION B

Answer all the questions.

11. A business with around 60 employees is planning to introduce a Local Area Network (LAN).

   (a) Describe both the hardware and the software needed for this organization to connect to the Internet and make use of e-mail facilities. [4 marks]

   (b) State two advantages of the LAN to users. [2 marks]

   (c) The business is considering introducing either a star or a bus network. Outline one advantage and one disadvantage of choosing the star. [4 marks]
12. A banking organization is considering setting up a network system.

(a) Explain two security measures that should be adopted to prevent unauthorized access. [4 marks]

(b) State two methods to ensure data integrity in the transmission of data. [2 marks]

(c) Discuss two implications of a failure of network security. [4 marks]
13. A hotel reservation system is being developed using the *prototyping approach*.

(a) (i) Compare *questionnaires* and *observation* as methods of *data collection*. [5 marks]

(ii) State **one** other method of data collection. [1 mark]

(b) Explain **two** advantages of prototyping. [4 marks]
14. Consider the following Java method:

```java
private int daysInMonth (int month)
{
    if((month == 4)||(month == 6)||(month == 9)||(month == 11))
    {
        return 30;
    }
    else if (month == 2)
    {
        return 28;
    }
    else
    {
        return 31;
    }
}
```

(a) Explain the significance of the word private in the method heading. [2 marks]

(b) Describe the result of the following method call:
    ```java
    int days = daysInMonth(7);
    ``` [3 marks]

(c) Describe a situation in which a logic error could occur as a result of calling this method. [3 marks]

The method daysInMonth(), which calculates the number of days in a given month, can be called from other methods.

(d) Suggest the purpose of one such method. [2 marks]