



1. Two of the stages of the system development life cycle is the **feasibility study** and **implementation**.

a. What do we mean by **legal feasibility** and **schedule feasibility**? [2]

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b. One **changeover method** is the **parallel changeover**. Mention and describe one other method. [2]

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c. What is **data migration**? Describe one potential problem with data migration. [2]

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d. One type of software testing is **dry-run testing**. What is it? Mention and describe another type of testing. [3]

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e. What does **SaaS** stand for? [1]

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2.

a. Why is it important to have good **code documentation**? Give two reasons. [2]

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b. Name **two** features that good code documentation must have. [2]

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c. **User documentation** can have several forms. Mention two. [2]

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d. Mention two potential causes for **data loss**. Give solutions to combat the causes you mentioned. [4]

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3.

a. Describe the role of the following **CPU** parts.

i. CU [2]

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ii. ALU [2]

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iii. MAR [2]

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iv. MDR [2]

b. What role does **L1** have? [2]

4.

a. List two examples of **secondary storage**. [1]

b. What is **Virtual Memory**? [3]

c. List and describe **two** functions of an **operating system**? [4]

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d. Describe the role of a **DBMS**. [2]

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5.

a. What are **signed** and **unsigned** numbers? [1]

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b. Express  $12.75_{10}$  in **binary**. [1]

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c. Express  $-2.5_{10}$  in **two's complement** in **one byte** where the point is between the fourth and fifth bit. [2]

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d. State **De Morgan's** rules. [2]

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e. Show that  $(A + B \cdot C)' + A' \cdot B + A \cdot C' = A' + C'$ . [4]

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6.

a. What is the difference between an **algorithm** and a **program**? [2]

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b. What two techniques do we normally use to express an algorithm? [2]

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c. Give an example of a **conditional statement**. [1]

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d. Define the following terms:

i. **Gantt chart** [1]

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ii. **Exception** [1]

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iii. **Concurrency** [1]

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iv. **Abstraction**

[1]

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v. **Modularisation**

[1]

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7.

a. The function **sumSqr** is defined as follows:  $\text{sumSqr}(n) = 1^2 + 2^2 + \dots + n^2$ . Write **pseudocode** that will solve  $\text{sumSqr}(n)$ :

i. Iteratively

[3]

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ii. Recursively

[3]

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- b. Describe what a **stack** is and what the operations **push** and **pop** do. [2]

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- c. A **stack ST** contains numbers. Write **pseudocode** such that while ST is emptied it will add how many negative numbers there were in the stack. [2]

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8.

- a. A **spooler queue** called **Spool** holds the names of the files to be printed. A file "**letter.txt**" has been cancelled for printing. Write an algorithm that removes "letter.txt" from the queue. You can use the methods **enqueue()**, **dequeue()** and **isEmpty()** and even use another (**temporary**) queue. [4]

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b. Write pseudocode that **searches** for an element in a **one-dimensional array**. [2]

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c. Write pseudocode that **searches** for an element in a **two-dimensional array**. [4]

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