

5. Answer the question below in relation to the flow chart given in figure 1.

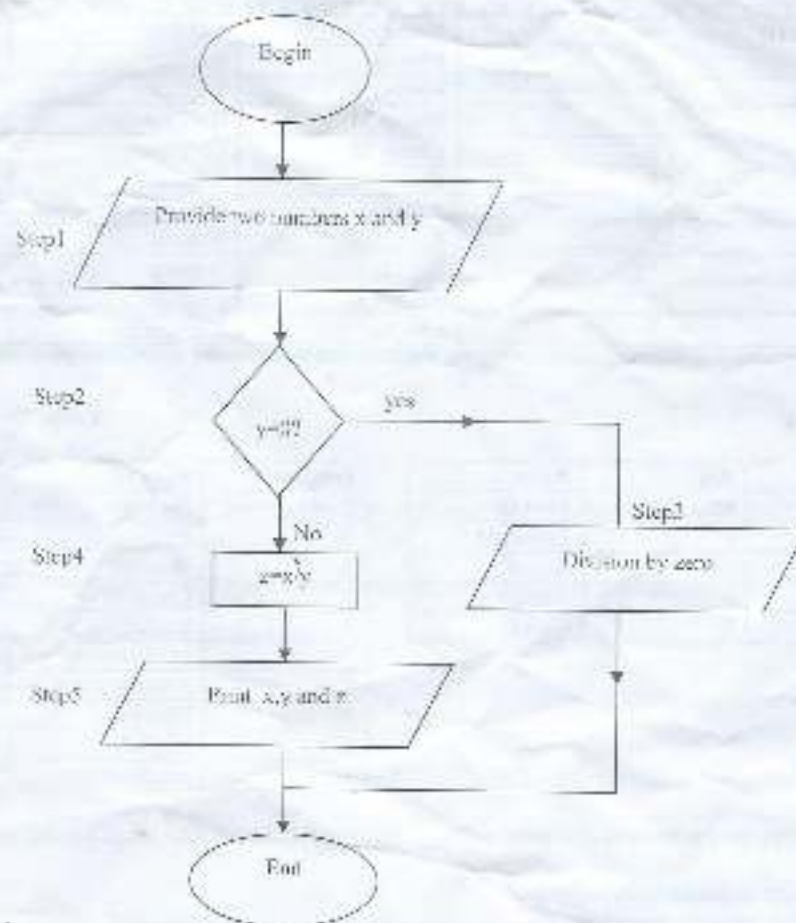


Figure 1

- (a) Define the term algorithm. (2 marks)
 - (b) Explain briefly each of the steps 2, 3 and 4 indicated in Figure 1. (5 marks)
 - (c) Represent the algorithm in the flow chart using pseudocode. (5 marks)
 - (d) A multifunction printer can be used for printing, photocopying, and scanning documents. Explain how it can function as:
 - (i) an input device. (2 marks)
 - (ii) an output device. (2 marks)
 - (iii) a shared resource in a network. (2 marks)
 - (e) List two advantages of a dot matrix printer over other printer types. (2 marks)
6. (a) State what you understand by a database management system. Give 2 examples. (3 marks)
- (b) In a database management system, state the meaning of each of the following terms:
- (i) record. (1 mark)
 - (ii) field. (1 mark)
 - (iii) key field. (1 mark)
- (c) Table 1 shows data related to students and their marks presented in a single table. Table 2a and 2b show the same information presented in two different tables. The data in Tables 2a and 2b are presented with less redundancy than the table in Table 1.
- (i) State what you understand by the term data redundancy. (2 marks)
 - (ii) Which field(s) in Table 1 contain(s) redundant data? (3 marks)

- ✓ 1. (a) Information processing is concerned with input, processing, output, and storage.
 (i) Describe briefly these four stages of information processing. Use a diagram to illustrate your answer.
 Give an example of a device used in each stage. (9 marks)
 (ii) What is the difference between software and hardware?
 Give an example of each. (2 marks)
- (b) Give brief descriptions for each of the following. Illustrate your descriptions with an example in each case.
 (i) Monitoring system. (3 marks)
 (ii) Simulation. (3 marks)
- (c) (i) What do you understand by green computing? (1 mark)
 (ii) List two measures that can be taken to encourage green computing. (2 marks)
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- ✓ 2. (a) State any two roles of each of the following components of the Central Processing Unit (CPU).
 (i) ALU. (2 marks)
 (ii) Control unit. (2 marks)
 (iii) Registers. (2 marks)
- (b) Distinguish between the following terms used in relation to computer software and files.
 (i) Updating and upgrading. (2 marks)
 (ii) Uploading and downloading. (2 marks)
- (c) State two differences between a floppy disk and a compact disc as storage media. (4 marks) ✓
- (d) Briefly explain how a computer writes data to, and reads data from:
 (i) a diskette. (3 marks)
 (ii) a CD. (3 marks)
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- ✓ 3. (a) Briefly explain what you understand by:
 (i) unauthorized access. (2 marks)
 (ii) unauthorized use. (2 marks)
 (iii) software piracy. (2 marks)
- (b) (i) State the difference between data verification and data validation. Illustrate your answer with examples. (4 marks)
 (ii) Explain clearly what you understand by the following:
 • Range check. (2 marks)
 • Presence check. (2 marks)
 • Format check. (2 marks)
- (c) System analysis is one of the stages of the System Development Life Cycle. List any four (4) activities carried out during system analysis. (4 marks)
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- ✓ 4. (a) With the help of a sketch in each case, briefly explain each of the following:
 (i) Computer network. (3 marks)
 (ii) Client – server network. (3 marks)
 (iii) Peer – to – peer network. (2 marks)
- (b) With the aid of a sketch explain briefly how data is transmitted in a token ring. (4 marks)
- (c) Briefly explain the following programming related terms:
 (i) Compiler. (2 marks)
 (ii) Interpreter. (2 marks)
 Give an example of a compiled language. (1 mark)
 (iii) Object oriented programming. (2 marks)
 Give an example of an object oriented programming language. (1 mark)

(iii) Explain how redundancy in (i) has been employed in Table 2a and/or Table 2b.

(2 marks)

Table 1

Student ID	Sex	Name	Subject	Marks
2	M	Ebot G	Biology	22
2	M	Ebot G	English	55
2	F	Etsadi M	Biology	45
3	F	Etsadi M	Chemistry	60
3	F	Etsadi M	English	70
20	M	Kaja C	Mathematics	50
5	F	Akanga K	History	40
20	M	Kaja C	History	32
5	F	Akanga K	English	60
10	F	Ebot G	Mathematics	50

Table 2a

Student ID	Sex	Name
2	M	Ebot G
3	F	Etsadi M
20	M	Kaja C
5	F	Akanga K
10	F	Ebot G

Table 2b

Student ID	Subject	Marks
2	Biology	22
2	English	55
2	Biology	45
3	Chemistry	60
3	English	70
20	Mathematics	50
5	History	40
20	History	32
5	English	60
10	Mathematics	50

(c) (i) What are the features of a good software that you would consider when buying software?

(4 marks)

(ii) What is productivity software?
Give any two examples.

(3 marks)

(d) (a) State what you understand by:

(i) Computer crime.

(2 marks)

(ii) Cyber crime.

(2 marks)

(iii) Computer ethics.

(2 marks)

(b) State the roles of the following two utility software types:

(i) Firewall.

(2 marks)

(ii) Antivirus software.

(2 marks)

(c) The Director of a centre for underprivileged blind children purchases five (5) single-user licenses for software that is essential for the children's training and because of a shortage of funds, now wonders whether he should go ahead and install the software on up to 20 computers to meet the needs of the centre. Explain the ethical issues that the Director is faced with.

(5 marks)

(d) Briefly describe the impact of computers on the following:

(i) Employment.

(3 marks)

(ii) Business.

(2 marks)