

0478

COMPUTER SCIENCE

TOPIC QUESTION PAPER-2 SET- 14

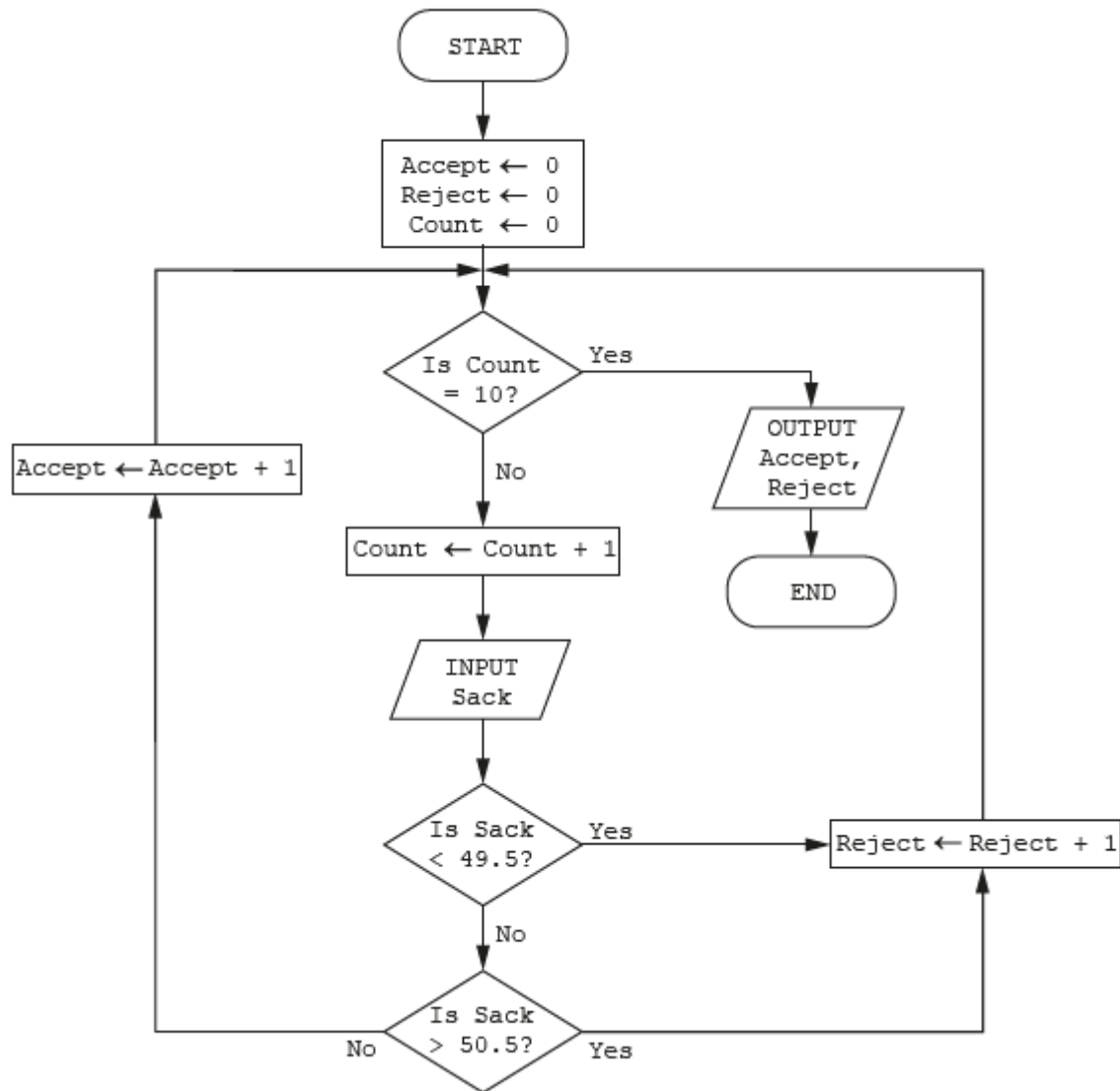
SMART EXAM RESOURCES

Unit 7 Algorithm Design and Problem Solving

1. Write an algorithm using **either** pseudocode **or** a flowchart, to:
 - input a positive integer
 - use this value to set up how many other numbers are to be input
 - input these numbers
 - calculate and output the total and the average of these numbers.

[6]

2. (a) This flowchart checks a batch of 10 rice sacks for weight. Sacks should weigh 50 kilograms each. Sacks weighing over 50.5 kilograms or less than 49.5 kilograms are rejected. The number of sacks accepted and the number of sacks rejected is output.



Complete the trace table for the input data:

50.4, 50.3, 49.1, 50.3, 50.0, 49.5, 50.2, 50.3, 50.5, 50.6

Accept	Reject	Count	Sack	OUTPUT

[5]

(b) The size of the batch has increased to 50 sacks. It has been decided to only reject sacks that are underweight.

State the changes that need to be made to the flowchart.

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.....

.....

.....[2]

3. Read this section of program code that inputs 10 positive numbers and then outputs the smallest number input.

```

1  Small = 1000
2  Counter = 0
3  REPEAT
4      INPUT Num
5      IF Num < Small THEN Small = Num
6      Counter = Counter + 1
7  UNTIL Counter = 10
8  PRINT Small

```

- (i) Identify **three** changes you would need to make to find the largest number input instead of the smallest number.

1

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2

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3

.....[3]

- (ii) Rewrite the program code with your changes.

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.....[3]

4. A program will be written to store information about members of a swimming club.

The following membership details will be recorded:

- Name
- Gender
- Status:
- Senior
- Junior
- Fee
- Team member (Yes or No)

(i) Choose a suitable data type for each of the membership details to be recorded.

Membership details	Data type
Name	
Gender	
Status	
Fee	
Team member	

[5]

(ii) The swimming club has 50 members.

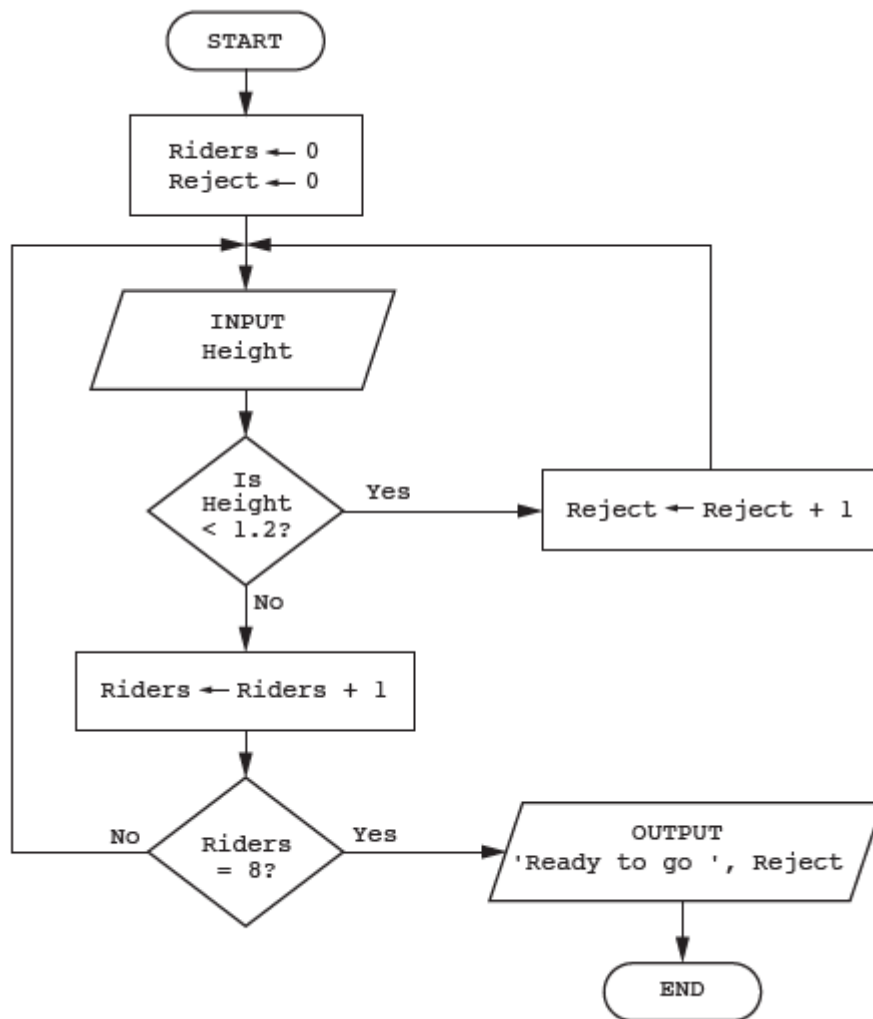
State the data structure that would be most suitable to use and give a reason for your choice.

Data structure.....

Reason.....

.....[2]

5. The flowchart below inputs the height of children who want to ride on a rollercoaster. Children under 1.2 metres are rejected. The ride starts when eight children have been accepted.



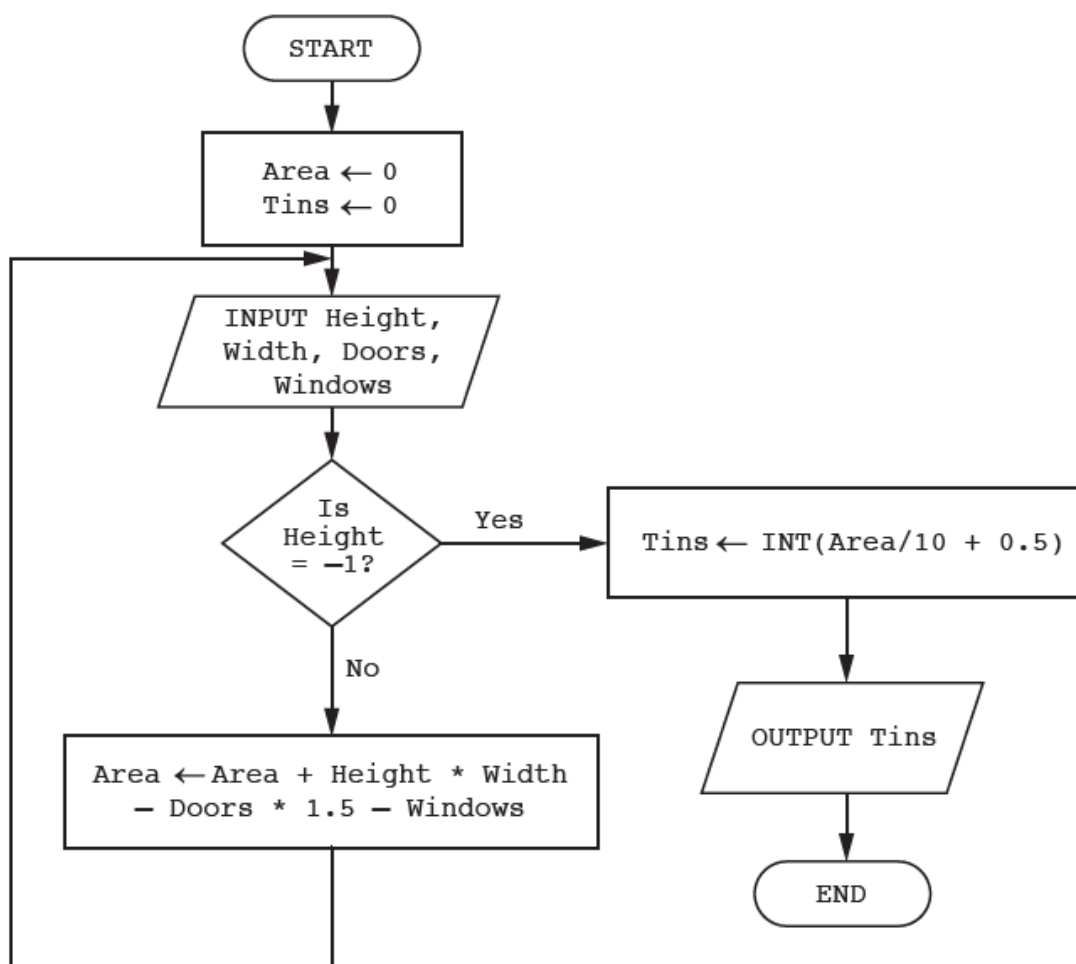
Complete the trace table for the input data:

1.4, 1.3, 1.1, 1.3, 1.0, 1.5, 1.2, 1.3, 1.4, 1.3, 0.9, 1.5, 1.6, 1.0

Riders	Reject	Height	OUTPUT

[4]

6. The flowchart below calculates the number of tins of paint required to paint walls. The flowchart inputs the height and width of a wall in metres, the number of doors and the number of windows. A value of -1 for the height stops the input.



Complete the trace table for the input data:

3, 5, 1, 0, 3, 7, 0, 0, 3, 5, 0, 3, 3, 7, 1, 1, -1 , 0, 0, 0

Area	Tins	Height	Width	Doors	Windows

[4]