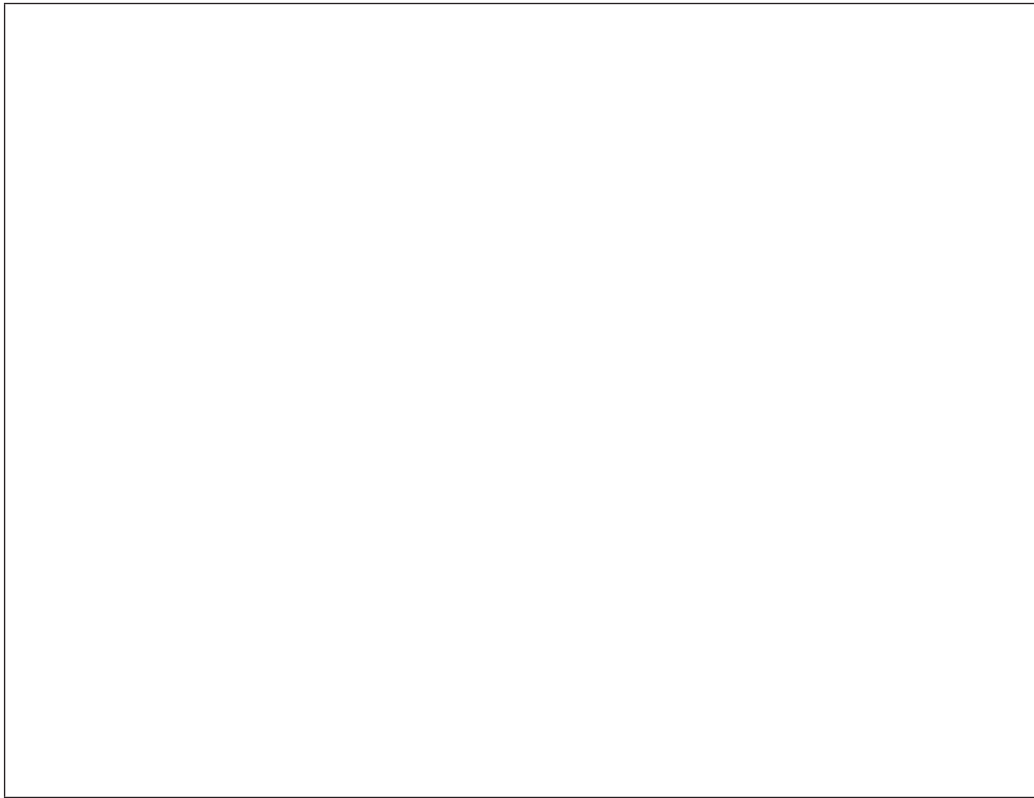


10. Sam is creating a program to calculate and display the total cost of laying new flooring. Flooring is charged at £15 per square meter and skirting boards are charged at £60 per room.

The total cost is calculated by multiplying the total floor area by 15, then adding the number of rooms requiring skirting multiplied by 60.

- (a) Using the information above, design a user interface for the program.

3



- (b) (i) State the part of the processor that will perform the calculation once the program is implemented.

1

- (ii) State the part of the processor used to temporarily store the result of the calculation.

1



10. (continued)

(c) Sam completes five jobs in July and earns the following.

£562.77, £675.44, £287.91, £245.22, £899.66

The following section of code calculates Sam's monthly earnings for July.

```
Line 1  DECLARE total INITIALLY 0.0
Line 2  DECLARE job1 INITIALLY 0.0
...
Line 7  RECEIVE job1 FROM KEYBOARD
Line 8  RECEIVE job2 FROM KEYBOARD
Line 9  RECEIVE job3 FROM KEYBOARD
Line 10 RECEIVE job4 FROM KEYBOARD
Line 11 RECEIVE job5 FROM KEYBOARD
Line 12 SET total TO = job1 + job2 + job3 + job4 + job5
Line 13 SEND "Total Monthly Earnings £" & total TO DISPLAY
...
```

When evaluating this code, it is found to be inefficient.

Using a programming language of your choice, re-write Lines 7 to 12 of the code using more efficient constructs. The values for the five jobs should remain stored for use after Line 12.

4

[Turn over



10. (continued)

(d) Sam takes pictures of floor layouts using a tablet device.

(i) The images are stored as bit-mapped graphics.

Describe how a bit-mapped graphic would be stored.

2

(ii) Describe one way that Sam could reduce the energy consumption of the tablet.

1
