

SECTION 1 — 20 marks
Attempt ALL questions

MARKS DO NOT
WRITE IN
THIS
MARGIN

1. Convert the decimal number -120 to binary using 8 bits.

1

2. Tables can be related by different types of relationships. State the type of relationship between the two tables in each case below.

(a) People and Hobbies

1

(b) Jockeys and Horses in a horse race

1



3. An online company uses a computer program to display particular customer records. The algorithm of this program is shown below.

```

Line 1   SET found TO false
Line 2   RECEIVE search_name FROM (STRING) KEYBOARD
Line 3   FOR counter FROM 0 TO <End Of List> DO
Line 4       IF name[counter] = search_name THEN
Line 5           SET found TO true
Line 6           SEND name[counter] & counter TO DISPLAY
Line 7       END IF
Line 8   END FOR
Line 9   IF found = false THEN
Line 10       SEND "Name not found" TO DISPLAY
Line 11  END IF
    
```

The following data is stored in the name array:

Jimmy, Samina, Kate, Jimmy, Adam

State the output from the above program if Jimmy is entered at line 2 from the keyboard. 2

4. One feature of a declarative language is the use of facts. Three facts are shown in lines one to three below:

```

Line 1   human(einstein).
Line 2   human(pascal).
Line 3   human(lovelace).

Line 4   mortal(X):-human(X).
    
```

State the feature being used in line 4 and explain a benefit of its use. 2

[Turn over

