0478

COMPUTER SCIENCE

TOPIC QUESTION PAPER-2 SET- 6

SMART EXAM RESOURCES

Unit 7 Algorithm Design and Problem Solving

1. This section of pseudocode is to be used as a validation check that will continue until a number between 0 and 499 inclusive is entered.

```
1       PRINT "Input a number from 0 to 499 inclusive"
2       FOR Number ← 1 TO 10
3         INPUT Number
4         IF Number < 0 AND Number > 499
5           THEN
6             PRINT "Invalid number, please try again"
7         ENDIF
8       UNTIL Number = 0 OR Number = 499
9       PRINT Number, " is within the correct range"
```

There are **three** lines in this pseudocode that contain errors. In each case, state the line number to identify the incorrect line and write out the corrected line in full.

Error 1 line number.....

Correction.....

.....

Error 2 line number.....

Correction.....

.....

Error 3 line number.....

Correction.....

.....[6]

2. A code must take the form LL9 9LL where L is a letter and 9 is a digit.

(a) A presence check has already been used to ensure data has been entered. Name **two** other types of validation check that can be used to test the code is valid.

Check 1 .....

Check 2 .....[2]

(b) Give **one** example of invalid test data for each of the validation checks you have named in **part (a)** and in each case, give a reason why it fails the check. Each example of test data must be different.

Check 1 Invalid Test Data .....

.....

Reason .....

.....

.....

.....

Check 2 Invalid Test Data .....

.....

Reason .....

.....

.....

.....[4]

3. Draw the flowchart symbol for **Decision** and the flowchart symbol for **Process**.

Decision	Process

4. Tick (√) **one** box in each row to identify if the statement about subroutines is **true** or **false**

Statement	true (√)	false (√)
A subroutine is called from within a program.		
A subroutine is **not** a complete program.		
A subroutine is a self-contained piece of code.		
A subroutine must return a value to the code from which it was called.		

[2]

5. This pseudocode algorithm is used as a validation check.

```
PRINT "Input a number from 1 to 5000"
REPEAT
  INPUT Number
  IF Number < 1 OR Number > 5000
    THEN
      PRINT "Invalid number, please try again"
  ENDIF
UNTIL Number >= 1 AND Number <= 5000
PRINT Number, " is within the correct range"
```

Identify **three** different types of test data. For each type, give an example of the test data you would use to test this algorithm and state a reason for your choice of test.

Type of test data 1.....

Test data .....

Reason.....

.....

Type of test data 2.....

Test data.....

Reason.....

.....

Type of test data 3.....

Test data.....

Reason.....

.....[6]

6. Draw a flowchart symbol to represent each of the following:

Input/Output	Decision

[2]