2 Read this section of code that inputs the ages of people entering an event. The input sequence is ended by inputting a negative value for age. The code outputs the number of people at the event over the age of 18.

```
01     Num18 = 0
02     INPUT Age
03     WHILE Age >= 0 DO
04         IF Age >= 18 THEN
05             Num18 = Num18 + Age
06         ENDIF
07     ENDWHILE
08     PRINT Num18 - Age
```

There are four errors in this code.

Locate these errors and suggest code correction to remove each error.

Error 1 .....

Correction.....

.....

Error 2 .....

Correction.....

.....

Error 3 .....

Correction.....

.....

Error 4 .....

Correction.....

.....

[4]

2 Read this section of program code that should input 10 positive numbers and then output the smallest number input.

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

There are **four** errors in this code.

Locate these errors and suggest a corrected piece of code for each error.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....[4]

2 Read this section of program code that should input 30 positive numbers and then output the largest number input.

```
1   Large = 9999
2   Counter = 0
3   WHILE Counter > 30
4   DO
5     INPUT Num
6     IF Num < Large THEN Large = Num
7     Counter = Counter - 1
8   ENDWHILE
9   PRINT Large
```

There are **four** errors in this code.

Locate these errors and suggest a corrected piece of code for each error.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....[4]

2 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 .....

.....

2 .....

.....

3 .....

.....[3]

(ii) Rewrite the program code with your changes.

.....

.....

.....

.....

.....

.....

.....

.....[3]

2 Read this section of program code that inputs 10 positive numbers and then outputs the total.

```
1   Total = 0
2   Counter = 0
3   REPEAT
4     INPUT Num
5     Total = Total + Num
6     PRINT Total
7     Counter = Counter + 1
8   UNTIL Counter = 10
```

This code works, but it is inefficient.

(i) Suggest **three** improvements that could be made.

1.....

.....

2.....

.....

3.....

.....[3]

(ii) Rewrite the program code with your improvements.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[3]

2 This section of program code asks for 50 numbers to be entered. The total and average of the numbers are calculated.

```
1   Total = 0
2   Counter = 50
3   PRINT 'When prompted, enter 50 numbers, one at a time'
4   REPEAT
5     PRINT 'Enter a number'
6     INPUT Number
7     Total + Number = Total
8     Number = Number + 1
9   UNTIL Counter = 50
10  Average = Number * Counter
11  PRINT 'The average of the numbers you entered is ', Average
```

There are **four** errors in this code.

State the line number for each error and write the correct code for that line.

Error 1 Line number .....

Correct code .....

Error 2 Line number .....

Correct code .....

Error 3 Line number .....

Correct code .....

Error 4 Line number .....

Correct code .....

[4]

2 Read this section of program code that should input 50 numbers and then output the average.

```
1   Total = 0
2   For Counter = 1 TO 50
3     INPUT Num
4     Total = Total + 1
5     Counter = Counter + 1
6     Average = Total/Counter
7   NEXT Counter
8   PRINT Average
```

There are **four** errors in this code.

Locate these errors and suggest code corrections to remove each error.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....[4]

2 Read this section of program code that should input 50 numbers and then output the average of the positive numbers only.

```
1   Total = 0
2   PosCount = 0
3   FOR Counter = 1 TO 50
4     INPUT Num
5     IF Num < 0 THEN Total = Total + Num
6     IF Num > 0 THEN Counter = Counter + 1
7     Average = Total/PosCount
8   NEXT Counter
9   PRINT Num
```

There are **four** errors in this code.

Locate these errors and suggest code corrections to remove each error.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....[4]

2 Read this section of program code that:

- inputs 10 numbers
- checks whether each number is within a specified range
- totals the numbers within the range and outside the range

```
1   InRange = 0
2   OutRange = 1000
3   FOR Count = 1 TO 10
4     INPUT Num
5     IF Num > 10 AND Num < 20 THEN InRange = InRange + 1
6       ELSE OutRange = OutRange - 1
7   Count = Count + 1
8   NEXT X
9   PRINT InRange, OutRange
```

(a) There are four errors in this code.

Locate these errors and suggest a correction to remove each error.

Error 1 .....

Correction .....

.....

Error 2 .....

Correction .....

.....

Error 3 .....

Correction .....

.....

Error 4 .....

Correction .....

.....[4]

(b) Decide, with reasons, whether the numbers 10 and 20 are within or outside the range.

Number	Within range (✓)	Outside range (✓)	Reason
10			…… ……
20			…… ……

[4]

2 Read this section of program code that inputs positive numbers, discards any negative numbers and then outputs the average. An input of zero ends the process.

```
1  Total = 0
2  Counter = 100
3  REPEAT
4    REPEAT
5      INPUT Num
6    UNTIL Num < 0
7    Total = Total + 1
8    Counter = Counter + Num
9  UNTIL Num = 0
10 Average = Total / (Counter - 1)
11 Print Average
```

There are four errors in this code.

Locate these errors and suggest a correction to remove each error.

Error 1 .....

Correction .....

.....

Error 2 .....

Correction .....

.....

Error 3 .....

Correction .....

.....

Error 4 .....

Correction .....

..... [8]

2 This section of program code asks for 80 numbers between 100 and 1000 to be entered. It checks that the numbers are in the correct range, and stores them in an array. It counts how many of the numbers are larger than 500 and then outputs the result when the program is finished.

```
1 Count = 0
2 FOR Index = 1 TO 80
3   INPUT 'Enter a number between 100 and 1000', Number
4   WHILE Number = 99 AND Number = 1001
5     INPUT 'This is incorrect, please try again', Number
6   ENDWHILE
7   Num[80] = Number
8   IF Number > 500 THEN Count = Count + 1
9  UNTIL Index = 80
10 PRINT Index
11 PRINT ' numbers were larger than 500'
```

There are **four** lines of code that contain errors.

State the line number for each error and write the correct code for that line.

Error 1 Line Number .....

Correct Code .....

Error 2 Line Number .....

Correct Code .....

Error 3 Line Number .....

Correct Code .....

Error 4 Line Number .....

Correct Code .....

[4]