Past Papers May/June 2015 to 2018, Oct/Nov 2015 till 2017:
Topic 2.2.1 Pseudocodes & Programming

(2210/21/M/J/15)

Q1/ 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. Explain the difference between a variable and a constant in a program.

.....

.....

.....[2]

3. Identify three different loop structures that you can use when writing pseudocode.

1.....

2.....

3..... [3]

4/- Five data types and five data samples are shown below.
Draw a line to link each data type to the correct data sample.

Data type	Data sample
Integer	'a'
Real	2
Char	2.0
String	True
Boolean	"Twelve"

[4]

(2210/21/M/J/15)

5/- 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]

6/- Four programming concepts and four examples of programming code are shown below.
Draw a line to link each programming concept to the correct example of programming code.

Programming concept	Example of programming code
Counting	`Sum = Sum + Value[n]`
Repetition	`IF Value = 10 THEN PRINT 'X'`
Selection	`FOR Counter = 1 TO 10`
Totalling	`Amount = Amount + 1`
	`Sum = Num1 + Num2`

[4]

(2210/21/M/J/16)

7/- 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.

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.....

.....

.....

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.....

.....

.....[3]

8/- 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]

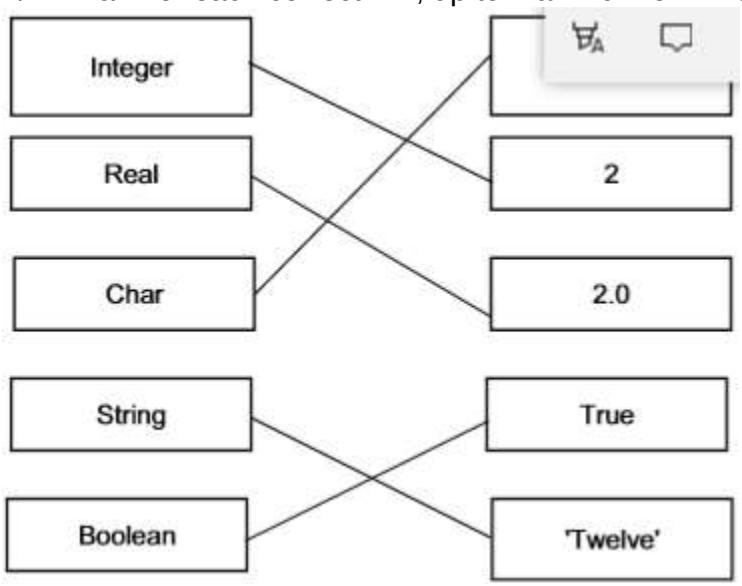
Answers
1/- mark for each error identified + suggested correction

- **Line 1** or Small = 0: this should read **Small = 999**
- **line 5** or IF…: this should read **IF Num < Small THEN Small = Num**
- **line 8** or UNTIL: this should read **UNTIL Counter = 10** or **UNTIL Counter > = 10** or **UNTIL Counter > 9**
- **line 7** or PRINT…: **PRINT** Small should come after the end of the repeat loop or line 8 or UNTIL: this should come before line 7 [4]

2/- Any two points from – a variable is used to store data that can change during the running of a program – a constant is used to store data that will not be changed during the running of a program [2] 3/-

- FOR (… TO … NEXT)
- REPEAT (… UNTIL)
- WHILE (… DO … ENDWHILE) [3]

4/- 1 mark for each correct link, up to maximum of 4 marks



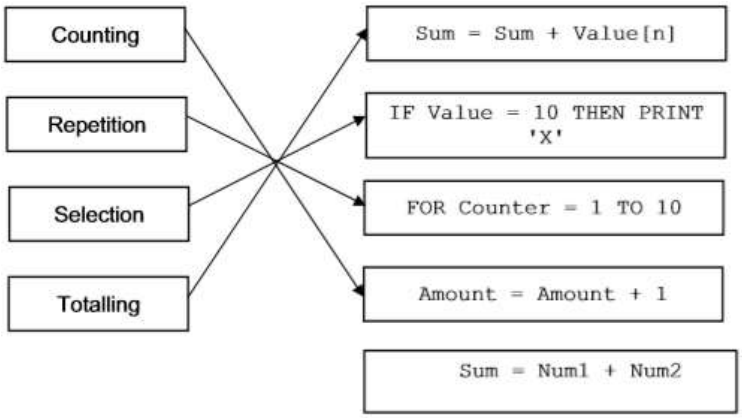
[4]

(2210/21/M/J/15)

5/- mark for each error identified + suggested correction.

- Line 1 or Large =9999: this should read Large = 0
- Line 3 or WHILE: this should read WHILE Counter < 30
- Line 6 or IF: this should read IF Num > Large THEN Large = Num
- Line 7 or Counter =…: this should read Counter = Counter + 1 [4]

6/- 1 mark for each correct line, two lines from one box not allowed



[4]

(2210/MJ/21/16)

7. (i) 1 mark for each change

- Change variable name in every instance as needs to be meaningful e.g. Large.
- Set this variable to a low value
- line 5: change comparison from < to > [3]

(ii) 3 marks maximum, 1 mark for each change correctly included.

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

[3]