Programming Theory Questions

These questions refer to the Preliminary Material and require you to load the Skeleton Program,
but do not require any additional programming.

1. State the name of an identifier for:

    (a) An array or list variable   (1 mark)

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    (b) A subroutine that has five parameters   (1 mark)

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    (c) A variable that is used to store a whole number   (1 mark)

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    (d) A subroutine that returns one or more values   (1 mark)

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    (e) A variable that stores a Boolean value   (1 mark)

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2. Look at the function ValidateBoatPosition.

    What is the purpose of the variable Orientation?   (2 marks)

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3   What data is stored for each ship?   (2 marks)

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4. Look at the procedure PlayGame.

    What is the purpose of the Do Until loop?   (3 marks)

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5. Give an example of a declaration and assignment statement from the Skeleton Program where a variable is assigned an initial value when it is declared. (2 marks)

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6. Explain the operation of the procedure PlaceShip. (4 marks)

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7. The skeleton program utilises the variable Board.

   (a) Describe the data structure held by Board. (1 mark)

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   (b) How is the data stored and used in this structure? (3 marks)

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8. State the name of an identifier for:

   (a) A subroutine that contains a nested loop (1 mark)

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   (b) A user-defined data type (1 mark)

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   (c) A variable that stores text (1 mark)

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   (d) A constant (1 mark)

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   (e) A library function with exactly one parameter that returns an integer value (1 mark)

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9. Look at the procedure PrintBoard.

   (a) What lines of code print the column headings? (3 marks)

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   (b) What is the advantage of this procedure over 'hard-coding'? (2 marks)

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10. This question is in relation to the routines PlaceRandomShips and LoadGame.

These routines both use a local variable called Row. What are local variables, and in relation to these routines what is an advantage of utilising local variables? (3 marks)

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11. The procedure PrintBoard utilises a For loop, whereas the Main procedure utilises a Do Until loop.

What is the difference between a For loop and a Do Until loop? (4 marks)

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12. SetUpShips is a procedure, whereas GetMainMenuChoice is a function.

Describe the difference between a procedure and a function. (2 marks)

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13. What is the purpose of the following line?

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Using FileReader As StreamReader = New StreamReader(Filename)
```

(1 mark)

....

....

14. What is the purpose of these lines?

```
Line = FileReader.ReadLine()
For Column = 0 To 9
    Board(Row, Column) = Line(Column)
Next
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(4 marks)

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15. The LoadGame procedure uses the file Training.txt by default.

    (a) What would happen to the program if Training.txt did not exist? (1 mark)

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    (b) Describe how we would change the program to solve this. (3 marks)

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TOTAL MARKS

/50