2.2 Programming Fundamentals: 10-minute Pack

OCR J277 · Calculators not allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 This question is about variables and constants.

(a) A program calculates the area of a circle using the formula area = π * radius^2. Define the term 'variable' and the term 'constant', giving one example of each from this program. **(2)**

(b) State two benefits to a programmer of using a named constant, such as PI, instead of writing the literal value 3.14159 directly wherever it is needed in the code. **(2)**

(Total for Question 1 is 4 marks)

2 Complete the table by evaluating each expression.

17 DIV 5 = ?

17 MOD 5 = ?

2 ^ 3 = ?

(10 - 3) * 2 = ?

(Total for Question 2 is 4 marks)

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Mark scheme · 2.2 Programming Fundamentals: 10-minute Pack

Question 1

(a) variable: a named storage location whose value can change while the program runs, e.g. radius **B1**

(a) constant: a named storage location whose value stays fixed throughout the program, e.g. π (3.14159) **B1**

(a) Answer: Variable: radius (its value changes each time the program runs). Constant: π = 3.14159 (its value never changes).

(b) if the value needs updating it only has to be changed in one place, reducing errors oe **B1**

(b) a meaningful name makes the code easier to read and understand oe **B1**

(b) Answer: 1. Only one place needs updating if the value changes. 2. A named constant makes the code's purpose clearer to read.

Question 2

17 DIV 5 = 3 cao **B1**

17 MOD 5 = 2 cao **B1**

2 ^ 3 = 8 cao **B1**

(10 - 3) * 2 = 14 cao **B1**

Answer: 3, 2, 8, 14

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