1. What is programming?

Select the best option from the choices below to come up with a good definition for programming.

1. Programming is the **idea / process** of **designing / producing** a **set** / list of **protocols / instructions** written in **code / symbols** to make a **computer / machine perform / entertain** a **specified / difficult problem / task**.
2. Using a computer **language** / set of icons such as **Basic** / Windows the programmer can **control** / **help** what the computer **thinks / does**.

2. Rewrite the following programming steps in the correct order:

1. Compile the program — 4
2. Write the code — 6
3. Provide documentation — 3 — ongoing process
4. Analyse the problem — 2
5. Get feedback from the users — 8
6. Design the program — 1
7. Test and correct the program — 7
8. Train the users — 5

3. Match the definitions on the right to the corresponding basic programming terms on the left.

1. algorithm
2. comments
3. variable
4. data
5. coding
6. debugging
7. structogram / flowchart

a. The process of writing instructions in a specific programming language
b. A method to solve a problem systematically step by step
c. The graphical representation of an algorithm
d. Serve to explain other parts of the program
e. Consists of a name, memory address and a value
f. Finding, analysing and correcting errors in a program
g. Information whose meaning has been agreed upon

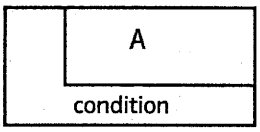
. Programming logic

4. Every program logic consists of three main structural elements: Sequence, Selection and Iteration (loop). Which is which?

a. … is a series of commands whereby B automatically and necessarily follows A.
b. … repeats a given sequence of commands as long as given conditions exists or until a given condition is fulfilled.
c. … executes one of two or more possible functions in a program depending on whether a given condition has been fulfilled or not.

5. Structogram elements

Match the following illustrations to the correct programming elements of a structogram.

1


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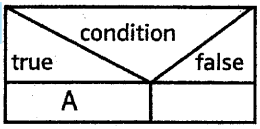

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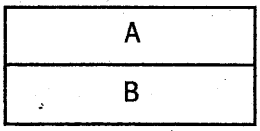

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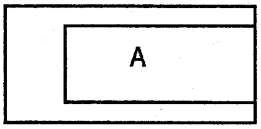
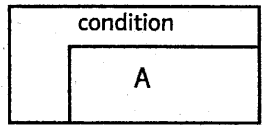


5


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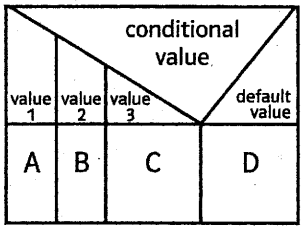

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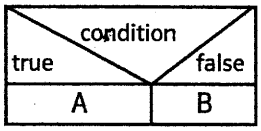

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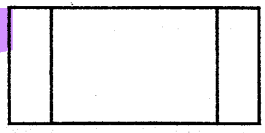
9


a. Dyadic selection checks a condition and, if it is true executes A in the true branch of the selection and if it's false executes B in the false branch.

b. A foot controlled **loop** around A checks the exit condition **just before leaving the structure.** The contained **structures** are executed once and a new cycle entered only if the exit condition is true.

c. Sequence is a series of commands whereby B automatically and necessarily follows A.

d. A multiple selection doesn't just have a *yes* or *no* condition but is required to interpret specific values. Each branch contains **structures** that are executed only if the associated value is entered as a condition. If none of the values equals the conditional value, the structure located in the default column on the right is executed.

e. Symbol for a call of a sub-routine, procedure or function. After this processing the program returns to the call point and proceeds with the following structure block of instructions.

f. The break or exit represents the end of part of a program. It should not interpreted as an unconditional jump.

g. A continuous looping has an entrance but no exit and keeps cycling the contained structures. All you have to do is use one or the other loop and make sure the loop condition is always true.

h. A monadic selection checks a condition and, if it proves true executes A located in the true branch, while the false branch of the selection remains empty.

i. A head controlled loop around A checks the exit condition right after entering the structure. The contained structures / conditions are only executed and a new cycle entered if the condition is true.