# ****Pseudocode and NS representations in SD exams 2007-2010****

## **2007 Question 12**

The following IF statement needs to be tested.

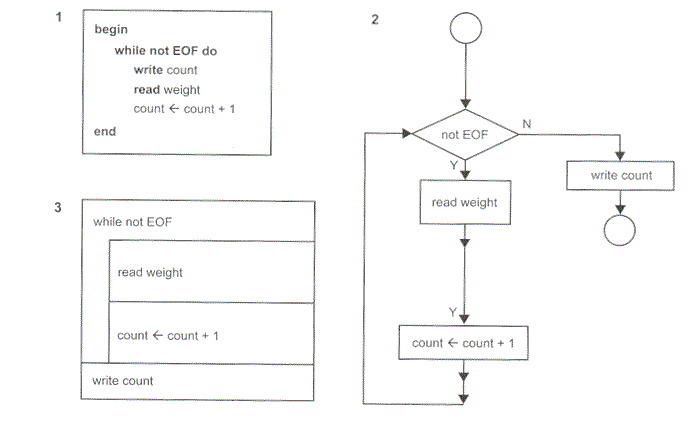
IF b > 10 AND b < 20 THEN  
PRINT b  
ENDIF

The best set of test data for b to test this algorithm is

A. 10, 11, 15, 19, 20  
B. 8, 9, 10, 11, 20  
**C. 9, 10, 12, 20, 21\***  
D. 8, 9, 10, 20, 21

2007 Q17

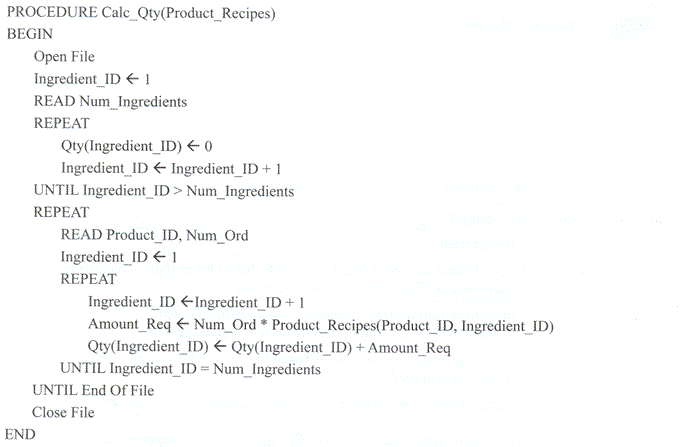
**Question 17**



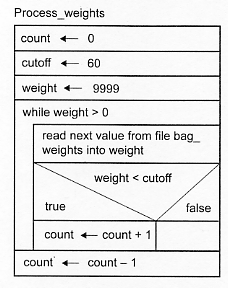
Which statement about diagrams 1, 2 and 3 is true?

A. The algorithm represented by diagram 1 is the same as that represented by diagram 2.  
**B. The algorithm represented by diagram 2 is the same as that represented by diagram 3.\***C. The algorithm represented by diagram 3 is the same as that represented by diagram 1.   
D. All three diagrams represent the same algorithm.

2007 Section C



# 2008



The algorithm **Process\_weights** has been designed to process data contained in a file called **bag\_weights**.

**Question 6**

The algorithm is to be tested using a pencil and paper. It is assumed that **bag\_weights** will contain the test data: 55, 77, 60, 0, 58.

At the end of the test the final value in variable **count** will be

A. -1

B. 0

**C. 1**

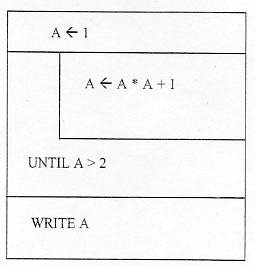
D. 2

Answer is D.



# 2009

**Question 19**



The output for the Nassi-Shneiderman diagram above would be

A. 2  
B. 3  
C. 5  
D. 6

Answer is C.

**Function** Check\_Length(Timber\_Length, LengthRequired)

**Begin**

**If** Timber\_Length > Length\_Required **Then**

Return **true**

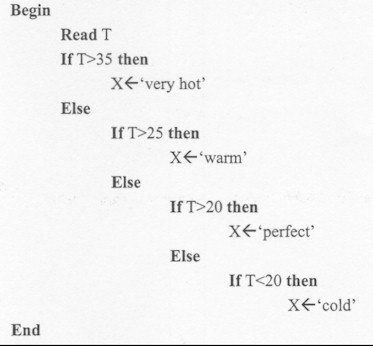
**Else**

Return **false**

**End if**

**End**

# 2010



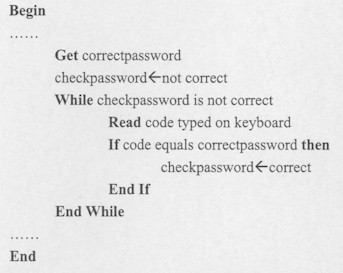
**Question 7**

Test the above algorithm with the value T=25. The variable X will contain  
A. 'cold'  
B. 'warm'  
C. 'perfect'  
D. 'very hot'

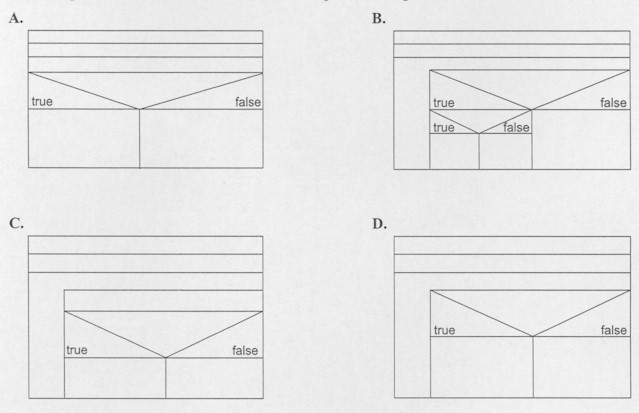
Answer is C.

**Question 19**

Below is part of an algorithm that reads and checks passwords. It is to be represented as a Nassi-Schneiderman diagram.



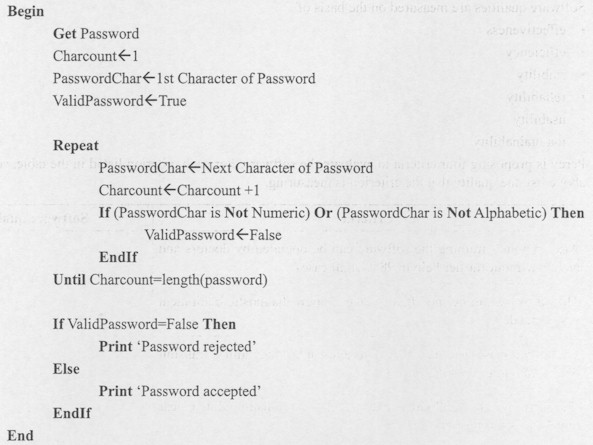
Which diagram shows the correct **structure** for this part of the algorithm?



Answer is C.

**Question 9**

During the trial it was found that when nurses changed their passwords for the portable devices the program failed and they were locked out. Investigation found that entering certain characters caused the problem, so it was decided to limit the passwords to just alphabetic letters and numbers. Suzie has suggested the algorithm below to validate a new password before it is stored in the system. She must now test it.



Suzie created the test data shown below.  
a.  For each item of data, give a reason for why that data was chosen.

|  |  |
| --- | --- |
| **Test data** | **Reason for choosing it** |
| 12a | It's a valid password and should be accepted by the program |
| \*la | Finds invalid character at the beginning of the password |
| l\*a | Finds invalid characters anywhere in the middle of the password |
| la\* | Finds invalid character at the end of the password |

4 marks

Question 10

a.  For the algorithm in Question 9, complete the test table below showing what output is expected from the test data and what it actually produces.

|  |  |  |
| --- | --- | --- |
| **Test data** | **Expected output** | **Actual output** |
| 12a | Password accepted | Password rejected |
| \*la | Password rejected | Password rejected |
| l\*a | Password rejected | Password rejected |
| la\* | Password rejected | Password rejected |

2 marks