Timed Mock for Quiz - 1

Question-1 [2 Marks]

Statement

The following pseudocode is executed using the “Scores” dataset. What will **A** represent at the end of execution?

```
A = 0
while(Table 1 has more rows){
    Read the first row X in Table 1
    if(X.Gender == “M” and X.CityTown == “Chennai”){
        A = A + X.Mathematics
    }
    Move X to Table 2
}
```

Options

(a)

Sum of Mathematics marks of students from Chennai

(b)

Sum of Mathematics marks of male students from Chennai

(c)

Sum of Mathematics marks of male students

(d)

Sum of Mathematics marks of male students not from Chennai

Answer

Question-2 [2 Marks]

Statement

Match the following expressions in the Column 1 with the appropriate values in column 2.

Column 1	Column 2
a. 2 = 2 or 2 > 3	1. Invalid expression
b. 2 == 2 and 2 > 3	2. True
c. 2 = 3	3. False
d. 2 + '2'	4. 4
e. 2 >=2	5. "22"

Options

(a)

a - (2), b - (3), c - (1), d - (1), e - (2)

(b)

a - (1), b - (3), c - (1), d - (1), e - (2)

(c)

a - (2), b - (3), c - (1), d - (4), e - (2)

(d)

a - (1), b - (3), c - (2), d - (1), e - (1)

Answer

Question-3 [3 Marks]

Statement

The following pseudocode is executed using the “Library” dataset. At the end of the execution, **A** captures the maximum number of pages of a book which is written in a language other than English. Choose the correct code fragment to complete the pseudocode.

```
A = 0
while (Table 1 has more rows) {
    Read the first row X in Table 1
    **********************
    *   Fill the code    *
    **********************
    Move X to Table 2
}
```

Options

(a)

```
if(X.Language == “English” and X.Pages > A){
    A = X.Pages
}
```

(b)

```
if(X.Language != “English” and X.Pages > A){
    A = X.Pages
}
```

(c)

```
if(X.Language != “English” and X.Pages < A){
    A = X.Pages
}
```

(d)

```
if(X.Language == “English” and X.Pages < A){
    A = X.Pages
}
```

Answer

Question-4 [2 Marks]

Statement

The following pseudocode is executed using the “Scores” dataset. At the end of the execution, **A** captures the second highest marks in Mathematics. Assume that **Max** holds the value of the highest mark in Mathematics. Choose the correct code fragment to complete the pseudocode.

```
A = 0
while(Table 1 has more rows){
    Read the first row X in Table 1
    **********************
    * Fill the code *
    **********************
    Move the row X to Table 2
}
```

Options

(a)

```
if(X.Mathematics > A){
    A = X.Mathematics
}
```

(b)

```
if(X.Mathematics > Max and X.Mathematics < A){
    A = X.Mathematics
}
```

(c)

```
if(X.Mathematics < Max and X.Mathematics > A){
    A = X.Mathematics
}
```

(d)

```
if(X.Mathematics < Max){
    A = X.Mathematics
}
```

Answer

Question 5 [3 Marks]

Statement

Let **X** be a row in the “Words” table. Let **isShortVerb** be a procedure to find whether the word in the row **X** is a verb with letter count at most five. Choose the correct code fragment to complete the pseudocode.

```
Procedure isShortVerb(X)
    **********************
    *   Fill the code    *
    **********************
End isShortVerb
```

Options

(a)

```
if(X.PartOfSpeech == “Verb”){
    return(True)
}
else{
    return(False)
}
```

(b)

```
if(X.PartOfSpeech == “Verb” and X.LetterCount ≤ 5){
    return(False)
}
else{
    return(True)
}
```

(c)

```
if(X.PartOfSpeech == “Verb” or X.LetterCount ≤ 5){
    return(True)
}
else{
    return(False)
}
```

(d)

```
if(X.PartOfSpeech == “Verb” and X.LetterCount ≤ 5){
    return(True)
}
else{
    return(False)
}
```

Answer

Question-6 [4 Marks]

Statement

The following pseudocode is executed using the “Words” dataset. What will **A** represent at the end of the execution?

```
A = 0
while(Table 1 has more rows){
    Read the first row X in Table 1
    i = 1, B = True
    while(i ≤ X.LetterCount){
        if(ith letter of X.Word is a vowel){
            B = False
        }
        i = i + 1
    }
    if(B){
        A = A + 1
    }
    Move X to Table 2
}
```

Options

(a)

Number of words with at most one vowel

(b)

Number of words with at exactly one vowel

(c)

Number of words without vowels

(d)

Number of words with vowel count at most 2

Answer

Question-7 [3 Marks]

Statement

The following pseudocode is executed using the “Library” dataset. At the end of the execution, **A** captures the number of books which are published after 2010 or have less than the average number of pages. Assume that the variable **Avg** holds the value of the average number of pages of the books in the dataset. The pseudocode may have mistakes. Identify all such mistakes (if any). It is a Multiple Select Question (MSQ).

```
1  A = 0
2  while(Table 1 has more rows){
3      Read the first row X in Table 1
4      C = False
5      if(X.Year > 2010){
6          C = True
7      }
8      if(X.Pages > Avg){
9          C = True
10     }
11     if(C){
12         A = 1
13     }
14     Move X to Table 2
15 }
```

Options

(a)

Error in Line 5

(b)

Error in Line 8

(c)

Error in Line 9

(d)

Error in Line 12

(e)

No error

Answer

Question-8 [3 Marks]

Statement

The following pseudocode is executed using the “Library” dataset. At the end of the execution, **A** is set to True if and only if there is a pair of books with same genre and same year of publication. Choose the correct code fragment to complete the pseudocode.

```
A = False
while(Table 1 has more rows){
    Read the first row X in Table 1
    Move X to Table 2
    while(Table 1 has more rows){
        Read the first row Y in Table 1
        Move Y to Table 3
        **********************
        *   Fill the code    *
        **********************
    }
    Move all rows from Table 3 to Table 1
}
```

Options

(a)

```
if(X.Genre == Y.Genre or X.Year == Y.Year){
    A = True
}
```

(b)

```
if(X.Genre == Y.Genre and X.Year == Y.Year){
    A = True
}
```

(c)

```
if(X.Genre == Y.Genre or X.Year == Y.Year){
    A = False
}
```

(d)

```
if(X.Genre == Y.Genre and X.Year == Y.Year){
    A = False
}
```

Answer

Question-9 [3 Marks]

Statement

The following pseudocode is executed using the “Library” dataset. What will **A** and **B** represent at the end of the execution?

```
A = 0, B = 0
while(Table 1 has more rows){
    Read the first row X in Table 1
    if(X.Pages == A){
        B = B + 1
    }
    if(X.Pages > A){
        A = X.Pages
        B = 1
    }
    Move X to Table 2
}
```

Options

(a)

A = Number of books with maximum number of pages

B = Maximum number of pages across all books

(b)

A = Maximum number of pages across all books

B = Number of books with maximum number of pages

(c)

A = Minimum number of pages across all books

B = It is always one

(d)

A = Maximum number of pages across all books

B = It is always one

Answer

Question-10 [4 Marks]

Statement

The following pseudocode is executed using the “Words” dataset. What will **C** represent at the end of the execution?

```
C = 0
while(Table 1 has more rows){
    Read the first row X from Table 1
    Move X to Table 2
    if(X.Word ends with a full stop){
        C = C + GetSomething(Table 2)
        Clear all rows in Table 2
    }
}

Procedure GetSomething(Table 2)
    A = 0
    While(Table 2 has more rows){
        Read the first row X in Table 2
        Move X to Table 3
        while(Table 2 has more rows){
            Read the first row Y in Table 2
            if(X.LetterCount ≠ Y.LetterCount and X.PartOfSpeech == Y.PartOfSpeech){
                A = A + 1
            }
            Move Y to Table 4
        }
        Move all rows from Table 4 to Table 2
    }
    return (A)
End GetSomething
```

Options

(a)

Number of pairs of words with the same part of speech and letter count

(b)

Number of pairs of words with the same part of speech and different letter count

(c)

Number of pairs of words with the same part of speech and letter count, that occur in the same sentence

(d)

Number of pairs of words with same part of speech and different letter count, that occur in the same sentence

Answer

Question-11 [5 Marks]

Statement

Let **A** be an author who had written a book in the “Library” dataset and **B** be a positive integer value. What does the procedure **DoSomething** compute?

```
Procedure DoSomething(A, B)
    C = 1900, D = 2022
    while(Table 1 has more rows){
        Read the first row X in Table 1
        if(X.Author == A){
            if(X.Year > C){
                C = X.Year
            }
            if(X.Year < D){
                D = X.Year
            }
        }
        Move X to Table 2
    }
    if(C – D ≥ B){
        return(True)
    }
    else{
        return(False)
    }
End DoSomething
```

Options

(a)

Outputs “True” if and only if the second book of the author **A** was published at least **B** years after their first book was published

(b)

Outputs “True” if and only if the last book of the author **A** was published at least **B** years after their first book was published

(c)

Outputs “True” if and only if the last book of the author **A** was published at least **B** years after their second-last book was published

(d)

Outputs “True” if and only if the last book of the author **A** was published at least **B** years before their first book was published

Answer

Question-12 [5 Marks]

Statement

The following pseudocode is executed using the “Scores” dataset. At the end of the execution, **A** captures the number of female students who are above average in at least one subject. Assume that **M**, **P** and **C** hold the average marks of the subjects Mathematics, Physics and Chemistry respectively. The pseudocode may have mistakes. Identify all such mistakes (if any). It is a Multiple Select Question (MSQ).

```
1  A = 0
2  while(Table 1 has more cards){
3      Read the first row X from Table 1
4      if(CheckSomething(X, M, P, C)){
5          A = 1
6      }
7      Move X to Table 2
8  }
9  Procedure CheckSomething(Y, C1, C2, C3)
10     if(Y.Gender == “F”){
11         if(Y.Mathematics > C1 and Y.Physics > C2 and Y.Chemistry > C3){
12             return (True)
13         }
14         else{
15             return(False)
16         }
17     }
18     else{
19         return(False)
20     }
21 End CheckSomething
```

Options

(a)

Error in Line 4

(b)

Error in Line 5

(c)

Error in Line 10

(d)

Error in Line 11

(e)

Multiple return(False) in procedure **CheckSomething**

(f)

No error

Answer

Question-13 [5 Marks]

Statement

The following pseudocode is executed using the “Words” dataset. At the end of the execution, **A** captures the number of sentences with at least two nouns that have at most 2 vowels. The pseudocode may have mistakes. Identify all such mistakes (if any). It is a Multiple Select Question (MSQ).

```
1  A = 0, C = 0
2  while(Table 1 has more cards){
3      Read the first row X from Table 1
4      if(X.PartOfSpeech == “Noun” and CountVowels(X) ≤ 2){
5          C = C + 1
6      }
7      if(X.Word ends with a full stop){
8          if(C ≥ 2){
9              A = A + 1
10             C = 0
11         }
12     }
13     Move X to Table 2
14 }
15 Procedure CountVowels(Y)
16     i = 1
17     B = 0
18     while(i ≤ Y.LetterCount){
19         if(ith letter of Y.Word is a vowel){
20             B = B + 1
21             i = i + 1
22         }
23     }
24     return(B)
25 End CountVowel
```

Options

(a)

Line 5: Error in updating **C**

(b)

Line 9: **A** is updated in wrong place

(c)

Line 10: **C** is updated in wrong place

(d)

Line 20: **B** is updated in wrong place

(e)

Line 21: **i** is updated in wrong place

(f)

Line 24: Return value is incorrect

Answer

Question-14 [6 Marks]

Statement

The following pseudocode is executed using the “Scores” dataset. At the end of the execution, **C** captures the number of pairs of students who have the same date of birth, or the same City/Town but different gender. Choose the correct code fragment(s) to complete the pseudocode. It is a Multiple Select Question (MSQ).

```
C = 0
while(Table 1 has more rows){
    Read the first row X in Table 1
    Move X to Table 2
    while(Table 1 has more rows){
        Read the first row Y in Table 1
        Move Y to Table 3
        **********************
        *   Fill the code    *
        **********************
    }
    Move all rows from Table 3 to Table 1
}
```

Options

(a)

```
if(X.DateOfBirth == Y.DateOfBirth){
    C = C + 1
}
if(X.Gender != Y.Gender and X.CityTown == Y.CityTown){
    C = C + 1
}
```

(b)

```
if(X.DateOfBirth == Y.DateOfBirth){
    C = C + 1
}
else{
    if(X.Gender != Y.Gender and X.CityTown == Y.CityTown){
        C = C + 1
    }
}
```

(c)

```
if(X.DateOfBirth == Y.DateOfBirth){
    if(X.Gender != Y.Gender and X.CityTown == Y.CityTown){
        C = C + 1
    }
}
```

(d)

```
if((X.DateOfBirth == Y.DateOfBirth) or (X.Gender != Y.Gender and X.CityTown
== Y.CityTown)){
    C = C + 1
}
```

Answer