Sub-Section Id :	64065388178
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 164 Question Id : 640653611540 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

A box contains 2 red pens, 3 black pens and 4 blue pens. In how many ways can 3 pens be drawn from the box, if at least one black pen is to be included?

Options :

6406532042183. ✖ 9

6406532042184. ✔ 64

6406532042185. ✖ 84

6406532042186. ✖ 20

Sem1 CT

Section Id :	64065341325
Section Number :	7
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	19
Number of Questions to be attempted :	19
Section Marks :	100
Display Number Panel :	Yes
Section Negative Marks :	0
Group All Questions :	No

Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	64065388179
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 165 Question Id : 640653611541 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL : SEMESTER 1: COMPUTATIONAL THINKING (COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

Options :

6406532042187. ✔ YES

6406532042188. ✖ NO

Question Number : 166 Question Id : 640653611542 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

Scores

RowNo	Name	Gender	DateOfBirth	CityTown	Mathematics	Physics	Chemistry	Total
0	Bhuvanesh	M	7 Nov	Erode	68	64	78	210
■ ■ ■								
29	Naveen	M	13 Oct	Vellore	72	66	81	219

Words

RowNo	Word	PartOfSpeech	LetterCount
0	It	Pronoun	2
■ ■ ■			
64	cane.	Noun	4

Library

RowNo	Name	Author	Genre	Language	Pages	Publisher	Year
0	Igniting Minds	Kalam	Nonfiction	English	178	Penguin	2002
■ ■ ■							
29	Malgudi Days	Narayan	Fiction	English	150	Indian Thought	1943

Olympics

Seq. No.	Name	Gender	Nationality	Host country	Year	Sport	Medal
0	Karnam Malleswari	F	Indian	Australia	2000	Weightlifting	Bronze
			- - -				
49	Michael Phelps	M	American	China	2008	Swimming	Gold

Three sample cards out of 30 for Shopping Bills dataset

Options :

6406532042189. ✔ Useful Data has been mentioned above.

6406532042190. ✖ This data attachment is just for a reference & not for an evaluation.

Sub-Section Number :	2
Sub-Section Id :	64065388180
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 167 Question Id : 640653611543 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

Let **X** and **Y** be two rows in the "Scores" table. We call **X** and **Y** partially matching ifstudent **X** and **Y** are either from the same city or have the same total marks but not both. Let **partialMatch(X, Y)** be a procedure to find whether **X** and **Y** are matching. Choose the correct implementation of the procedure **partialMatch**.

Options :

6406532042191. ✖

```
Procedure partialMatch(X, Y)
    A = False, B = False
    if(X.CityTown == Y.CityTown){
        A = True
    }
    if(X.Total == Y.Total){
        B = True
    }
    if(A and B){
        return (True)
    }
    return(False)
End partialMatch
```

6406532042192. ✖

```
Procedure partialMatch(X, Y)
    A = False, B = False
    if(X.CityTown == Y.CityTown){
        A = True
    }
    if(X.Total == Y.Total){
        B = True
    }
    if(A or B){
        return(True)
    }
    return(False)
End partialMatch
```

6406532042193. ✔

```
Procedure partialMatch(X, Y)
    A = 0, B = 0
    if(X.CityTown == Y.CityTown){
        A = 1
    }
    if(X.Total == Y.Total){
        B = 1
    }
    if(A + B == 1){
        return(True)
    }
    return(False)
End partialMatch
```

```
Procedure partialMatch(X, Y)
    A = 0, B = 0
    if(X.CityTown == Y.CityTown){
        A = 1
    }
    if(X.Total == Y.Total){
        B = 1
    }
    if((A + B) > 1){
        return(True)
    }
    return(False)
End partialMatch
```

6406532042194. ✖

Sub-Section Number : 3

Sub-Section Id : 64065388181

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653611544 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (168 to 169)

Question Label : Comprehension

The following pseudocode is executed using the “Scores” dataset. Two students form a study pair if the difference of their Physics marks is at most 20.

```
count1 = studyPair(Table 1)
while (Table 1 has more rows){
    Read the first row X in Table 1
    if(X.CityTown == "Mumbai"){
        Move X to Table MUM
    }
    if(X.CityTown == "Vellore"){
        Move X to Table VEL
    }
    if(X.CityTown == "Kolkata"){
        Move X to Table KOL
    }
}
count2 = studyPair(Table MUM) + studyPair(Table VEL) + studyPair(Table KOL)

Procedure studyPair(Table 1)
    Table T1 = Table 1
    A = 0
    while(Table T1 has more rows){
        Read the first row X in Table T1
        Move X to Table T2
        while(Table T1 has more rows){
            Read the first row Y in Table T1
            Move Y to Table T3
            if(-20 ≤ Y.Physics - X.Physics ≤ 20){
                A = A + 1
            }
        }
        Move all rows from Table T3 to Table T1
    }
    return(A)
End studyPair
```

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 168 Question Id : 640653611545 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

What will **count1** represent at the end of execution?

Options :

6406532042195. ✔ Number of study pairs

6406532042196. ✖ Number of pairs of study pairs

6406532042197. ✖ Number of students who formed study pairs

6406532042198. ✖ Number of study pairs from the same city

Question Number : 169 Question Id : 640653611546 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

What will **count2** represent at the end of execution?

Options :

6406532042199. ✖ Number of study pairs where students in each pair are from the same city

6406532042200. ✖ Number of study pairs where students in each pair are from different cities among Mumbai, Vellore and Kolkata

6406532042201. ✔ Number of study pairs where students in each pair are from the same city among Mumbai, Vellore and Kolkata

6406532042202. ✖ Number of study pairs where students in each pair are from different city

Sub-Section Number :	4
Sub-Section Id :	64065388182
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 170 Question Id : 640653611547 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Correct Marks : 5

Question Label : Multiple Choice Question

A word is said to be *perfect* if no letter is repeated. Let **isPerfect** be a procedure that takes a row **X** in the "Words" table as input and decides whether the word is *perfect*. Choose the correct implementation of the procedure **isPerfect**.

Options :

6406532042203. ✖

```
Procedure isPerfect(X)
    C = []
    i = 1
    flag = True
    while(i ≤ X.LetterCount){
        A = ith letter in X.Word
        if(member(C, A)){
            flag = False
        }
        else{
            C = C ++ [A]
            flag = True
        }
        i = i + 1
    }
    return(flag)
End isPerfect
```

6406532042204. ✔

```
Procedure isPerfect(X)
    C = []
    i = 1
    flag = True
    while(i ≤ X.LetterCount){
        A = ith letter in X.Word
        if(member(C, A)){
            flag = False
            exitloop
        }
        C = C ++ [A]
        i = i + 1
    }
    return(flag)
End isPerfect
```

6406532042205.

```
Procedure isPerfect(X)
    C = []
    i = 1
    flag = True
    while(i ≤ X.LetterCount){
        A = ith letter in X.Word
        if(member(C, A)){
            C = C ++ [A]
        }
        else{
            flag = False
            exitloop
        }
        i = i + 1
    }
    return(flag)
End isPerfect
```

```
Procedure isPerfect(X)
    C = []
    i = 1
    flag = True
    while(i ≤ X.LetterCount){
        A = ith letter in X.Word
        if(member(C, A)){
            exitloop
        }
        C = C ++ [A]
        i = i + 1
    }
    return(flag)
End isPerfect
```

6406532042206.

Sub-Section Number : 5

Sub-Section Id : 64065388183

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653611548 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix

Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (171 to 172)

Question Label : Comprehension

The following pseudocode is executed using the “Words” dataset. Study the given pseudocode and answer the subquestions.

```
A = 0, flag = True
inList = [], outList = []
while (Table 1 has more rows){
    Read the first row X in Table 1
    if (flag){
        inList = [X.Word ]
        flag = False
    }
    if (X.Word ends with a full stop){
        outList = outList ++ [[X.Word] ++ inList]
        A = A + 1
        inList = []
        flag = True
    }
    Move X to Table 2
}
```

Sub questions

Question Number : 171 Question Id : 640653611549 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

What will **outList** represent at the end of execution?

Options :

6406532042207. ✖ List of lists of last word of each sentence

6406532042208. ✖ List of lists of first word of each sentence

6406532042209. ✔ List of lists of last and first word of each sentence in that order

6406532042210. ✖ List of lists of first and last word of each sentence in that order

6406532042211. ✖ List of lists of first and last word of each sentence in any order

Question Number : 172 Question Id : 640653611550 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

At the end of execution the value of **length(outList)** will be same as the total number of words in the dataset.

Options :

6406532042212. ✖ TRUE

6406532042213. ✔ FALSE

Sub-Section Number :	6
Sub-Section Id :	64065388184
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 173 Question Id : 640653611551 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5

Question Label : Multiple Choice Question

The given pseudocode is executed using the “Words” dataset. **C** stores the number of nouns which have at least one verb adjacent to it. Choose the correct code fragment to complete the pseudocode.

```
V = [], N = [], C = 0
while(Table 1 has more rows){
    Read the first row X in Table 1
    if(X.PartOfSpeech == "Verb"){
        V = V ++ [X.SeqNo]
    }
    if(X.PartOfSpeech == "Noun"){
        N = N ++ [X.SeqNo]
    }
    Move X to Table 2
}
**********************
*   Fill the code    *
**********************
```

Options :

6406532042214. ✔

```
foreach Y in N{
    if(member(V, Y-1) or member(V, Y+1)){
        C = C + 1
    }
}
```

6406532042215. ✖

```
foreach Y in N{
    if(member(V, Y-1) and member(V, Y+1)){
        C = C +1
    }
}
```

6406532042216. ✖

```
foreach Y in V{
    if(member(N, Y-1) or member(N, Y+1)){
        C = C +1
    }
}
```

6406532042217. ✖

```
foreach Y in V{
    if(member(N, Y-1) and member(N, Y+1)){
        C = C +1
    }
}
```

Question Number : 174 Question Id : 640653611552 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5

Question Label : Multiple Choice Question

The following pseudocode is executed using the "Scores" table. At the end of the execution, **D** captures the following information: **D[A][B]** stores the minimum marks scored in subject **B** by a student from city **A**. Choose the correct code fragment to complete the pseudocode.

```
D = {}
L = ["Physics", "Chemistry", "Mathematics"]
    while(Table 1 has more rows){
    Read the first row X in Table 1
    **********************
    *** Fill the code  ***
    **********************
    Move X to Table 2
}
```

Options :

6406532042218. ✖

```
if(not isKey(D, X.CityTown)){
    D[X.CityTown] = { }
    foreach B in L{
        D[X.CityTown][B] = 101
    }
}
else{
    foreach B in L{
        if(D[X.CityTown][B] < X.B){
            D[X.CityTown][B] = X.B
        }
    }
}
```

6406532042219. ✖

```
if(not isKey(D, X.CityTown)){
    foreach B in L{
        D[X.CityTown][B] = 0
    }
}
foreach B in L{
    if(D[X.CityTown][B] > X.B){
        D[X.CityTown][B] = X.B
    }
}
```

```
if(not isKey(D, X.CityTown)){
    D[X.CityTown] = { }
    foreach B in L{
        D[X.CityTown][B] = 101
    }
}
foreach B in L{
    if (D[X.CityTown][B] > X.B){
        D[X.CityTown][B] = X.B
    }
}
```

6406532042220. ✔

```
if(not isKey(D, X.CityTown)){
    D[X.CityTown] = { }
}
foreach B in L{
    if(D[X.CityTown][B] > X.B){
        D[X.CityTown][B] = X.B
    }
}
```

6406532042221. ✖

Question Number : 175 Question Id : 640653611553 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5

Question Label : Multiple Choice Question

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

```
cityMarks = {}
while(Table 1 has more rows){
    Read the first row X in Table 1
    if(isKey(cityMarks, X.CityTown)){
        cityMarks[X.CityTown] = cityMarks[X.CityTown] ++ [X.Total ]
    }
    else{
        cityMarks[X.CityTown] = [X.Total ]
    }
    Move row X to Table 2
}

A = 301, L = []
foreach c in keys(cityMarks){
    data = doSomething(cityMarks[c])
    B = last(data) - first(data)
    if(B == A){
        L = L ++ [c]
    }
    if(B < A){
        A = B
        L = [c]
    }
}

Procedure doSomething(Y)
    p = 0, q = 301
    foreach k in Y{
        if(k > p){
            p = k
        }
        if(k < q){
            q = k
        }
    }
    return([p, q])
End doSomething
```

Options :

6406532042222. ✖ List of cities in which the difference of highest total and lowest total marks of students is same

6406532042223. ✖ List of cities in which the difference of highest total and lowest total marks of

students is maximum

6406532042224. ✔ List of cities in which the difference of highest total and lowest total marks of students is minimum

6406532042225. ✖ List of cities in which the difference of highest total and lowest total marks of students is 301

Question Number : 176 Question Id : 640653611554 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5

Question Label : Multiple Choice Question

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

```
D = { }, A = 0
while(Table 1 has more rows){
    Read the first row X in Table 1
    D = updateDictionary(D, X)
    Move X to Table 2
}
foreach C in keys(D){
    if(C is a vowel and D[C] > A){
        A = D[C]
    }
}

Procedure updateDictionary(D, Y)
    i = 1
    while(i ≤ Y.LetterCount){
        B = ith letter in Y.Word
        if(isKey(D, B)){
            D[B] = D[B] + 1
        }
        else{
            D[B] = 1
        }
        i = i + 1
    }
    return(D)
End updateDictionary
```

Options :

6406532042226. ✖ Frequency count of a vowel which occurs in maximum number of words in the dataset

6406532042227. ✖ Frequency count of a vowel which occurs maximum times in a single word

6406532042228. ✖ Frequency count of a vowel which occurs in maximum number of sentences in the dataset

6406532042229. ✔ Frequency count of the most frequent vowel in the dataset

Sub-Section Number :	7
Sub-Section Id :	64065388185
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653611555 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (177 to 178)

Question Label : Comprehension

Consider a graph generated from **n** rows of “Scores” table that is represented by a matrix **M**. Each node in the graph corresponds to a student from the table. SeqNo is used to label the nodes in the graph. Study the given pseudocode and answer the subquestions.

```
M = createMatrix(n, n)
foreach i in rows(M){
    foreach j in columns(M){
        M[i][j] = [ ]
    }
}
L = ["Chemistry", "Mathematics", "Physics"]
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
        foreach Subject in L{
            if(X.Subject > Y.Subject){
                M[Y.SeqNo][X.SeqNo] = M[Y.SeqNo][X.SeqNo] ++ [Subject]
            }
            if(X.Subject < Y.Subject){
                M[X.SeqNo][Y.SeqNo] = M[X.SeqNo][Y.SeqNo] ++ [Subject]
            }
        }
    }
    Move all rows from Table 3 to Table 1
}
```

Sub questions

Question Number : 177 Question Id : 640653611556 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

For each pair of vertices **i** and **j** with **i != j,** choose the correct statement about **M[i][j]**.

Options :

6406532042230. ✖ **M[i][j]** is a list of subjects in which **i** scores more than **j**

6406532042231. ✖ **M[i][j]** is the number of subjects in which **i** scores more than **j**

6406532042232. ✔ **M[i][j]** is a list of subjects in which **i** scores less than **j**

6406532042233. ✖ **M[i][j]** is the number of subjects in which **i** scores less than **j**

Question Number : 178 Question Id : 640653611557 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

Which of the following indicates that student i has scored the maximum marks in subject **S**?

Options :

6406532042234. ✖ **S** appears in **M[i][j]** for every **j**

6406532042235. ✖ **S** appears in **M[j][i]** for every **j**

6406532042236. ✔ **S** does not appear in **M[i][j]** for any **j**

6406532042237. ✖ **S** does not appear in **M[j][i]** for any **j**

Sub-Section Number :	8
Sub-Section Id :	64065388186
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653611558 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (179 to 180)

Question Label : Comprehension

Consider a graph generated from the “Scores” table that is represented by a matrix **M**. Each node in the graph corresponds to a student from the table. SeqNo is used to label the nodes in the graph. Study the given pseudocode and answer the subquestions.

```
A = {}
while (Table 1 has more rows){
    Read the first row X in Table 1
    A[X.SeqNo] = [X.CityTown, X.Gender ]
    Move X to Table 2
}
n = length(keys(A))
M = createMatrix(n, n)
foreach i in keys(A){
    foreach j in keys(A){
        if (i != j and isRelated(A[i], A[j])){
            M[i][j] = 1
        }
    }
}

Procedure isRelated(Y, Z)
    if(first(Y) == first(Z) or last(Y) != last(Z)){
        return(True)
    }
    else{
        return(False)
    }
End isRelated
```

Sub questions

Question Number : 179 Question Id : 640653611559 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

There is an edge between students **i** and **j**, with **i != j**, if:

Options :

6406532042238. ✖ they are from the same city/town

6406532042239. ✖ they have the same gender

6406532042240. ✖ they are from the same city/town or have the same gender

6406532042241. ✔ they are from the same city/town or have different gender

Question Number : 180 Question Id : 640653611560 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Which of the following statements are true about this graph? It is a Multiple Select Question.

Options :

6406532042242. ✖ There are only two cliques in this graph

6406532042243. ✖ All students in a given clique have the same gender

6406532042244. ✖ The graph is directed

6406532042245. ✔ All students in a given clique can be from different cities/towns

Sub-Section Number :	9
Sub-Section Id :	64065388187
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653611561 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (181 to 182)

Question Label : Comprehension

Consider a graph generated from the “Words” table that is represented by a matrix **M**. Each node in the graph corresponds to a word from the table. SeqNo is used to label the nodes in the graph. Study the given pseudocode and answer the subquestions.

```
A = {}
while(Table 1 has more rows){
    Read the first row X in Table 1
    A[X.SeqNo] = [X.LetterCount, X.PartOfSpeech]
    Move X to Table 2
}
n = length(keys(A))
M = createMatrix(n, n)
foreach i in keys(A){
    foreach j in keys(A){
        if((last(A[i]) != last(A[j])) and isCompatible(A[i], A[j])){
            M[i][j] = 1
        }
    }
}

Procedure isCompatible(P, Q)
    if((first(P) - first(Q)) == -1){
        return(True)
    }
    else{
        return(False)
    }
End isCompatible
```

Sub questions

Question Number : 181 Question Id : 640653611562 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

There will be an edge from word **i** to **j** if:

Options :

6406532042246. ✖ The letter count and part of speech of words **i** and **j** are same

6406532042247. ✖ The letter count of word **i** is more than **j** and both have different part of speech

6406532042248. ✖ The letter count of word **i** is one more than **j** and both have different part of speech

6406532042249. ✔ The letter count of word **j** is one more than **i** and both have different part of

speech

Question Number : 182 Question Id : 640653611563 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

Every pair of nodes with the same part of speech is connected by an edge.

Options :

6406532042250. ✖ TRUE

6406532042251. ✔ FALSE

Sub-Section Number :	10
Sub-Section Id :	64065388188
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653611564 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (183 to 184)

Question Label : Comprehension

Consider a graph generated from the “Scores” table that is represented by a matrix **M**. Each node in the graph corresponds to a student from the table. SeqNo is used to label the nodes in the graph. Study the given pseudocode and answer the subquestions.

```
D = {}
while(Table 1 has more rows){
    Read the first row X in Table 1
    D[X.SeqNo] = {“P”: X.Physics, “C”: X.Chemistry, “M”: X.Mathematics}
    Move X to Table 2
}
Ph = getAdjMatrix(D, "P")
Ch = getAdjMatrix(D, "C")
Ma = getAdjMatrix(D, "M")

Procedure getAdjMatrix(D, Subject)
    n = length(keys(D))
    M = createMatrix(n,n)
    foreach i in rows(M){
        foreach j in columns(M){
            if(i != j){
                diff = D[i][Subject] - D[j][Subject]
                    if(10 ≤ diff and diff ≤ 20){
                    M[i][j] = 1
                }
            }
        }
    }
    return(M)
End getAdjMatrix
```

Sub questions

Question Number : 183 Question Id : 640653611565 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

Choose the correct statement based on given pseudocode.

Options :

6406532042252. ✔ For all **i** and **j**, if **Ph[i][j]** = 1 then **Ph[j][i]** = 0

6406532042253. ✖ For all **i** and **j**, if **Ph[i][j]** = 0 then **Ph[j][i]** = 1

6406532042254. ✖ For all **i** and **j**, if **Ph[i][j]** = 1 then **Ph[j][i]** = 1

6406532042255. ✖ For all **i** and **j**, if **Ph[i][j]** = 0 then **Ph[j][i]** = 0

Question Number : 184 Question Id : 640653611566 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Choose the correct statement(s) based on given pseudocode. It is a Multiple Select Question.

Options :

6406532042256. ✔ For all **i** and **j**, $0 \le (Ph[i][j] + Ch[i][j] + Ma[i][j]) \le 3$

6406532042257. ✖ For all **i** and **j**, $(Ph[i][j] + Ch[i][j] + Ma[i][j]) == (Ph[j][i] + Ch[j][i] + Ma[j][i])$

6406532042258. ✖ For all **i** and **j**, $(Ph[i][j] + Ch[i][j] + Ma[i][j]) != (Ph[j][i] + Ch[j][i] + Ma[j][i])$

6406532042259. ✔ For all **i** and **j**, $(Ph[i][j] + Ch[i][j] + Ma[i][j] + Ph[j][i] + Ch[j][i] + Ma[j][i]) \le 3$

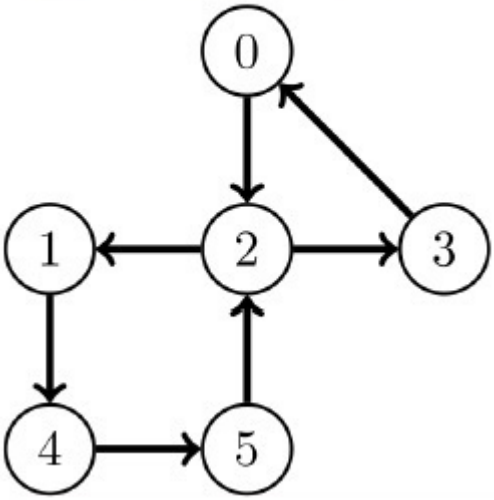
Sub-Section Number :	11
Sub-Section Id :	64065388189
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653611567 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (185 to 186)

Question Label : Comprehension

Let **M** be an adjacency matrix of a graph **G** given below, where **M[i][j]** = 1 if there is an edge from **i** to **j**, otherwise 0.




```
1  Procedure updateMatrix(M)
2      tempMat = M
3      foreach i in rows(M){
4          foreach k in columns(M){
5              if(M[i][k] == 1){
6                  foreach j in columns(M){
7                      if(M[k][j] == 1){
8                          tempMat[i][j] = 1
9                      }
10                 }
11             }
12         }
13     }
14     return(tempMat)
15 End updateMatrix
```

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 185 Question Id : 640653611568 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

What will be the values of **A** and **B** at the end of execution of pseudocode given below?

```
newMatrix = updateMatrix(M)
A = newMatrix[0][1]
B = newMatrix[3][4]
```

Options :

6406532042260. ✖ **A** = 1, **B** = 1

6406532042261. ✔ **A** = 1, **B** = 0

6406532042262. ✖ **A** = 0, **B** = 1

6406532042263. ✖ **A** = 0, **B** = 0

Question Number : 186 Question Id : 640653611569 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

What will be the values of **A** and **B** at the end of execution of pseudocode given below?

```
newMatrix = updateMatrix(M)
newMatrix2 = updateMatrix(newMatrix)
A = newMatrix2[2][0]
B = newMatrix2[4][0]
```

Options :

6406532042264. ✖ **A** = 1, **B** = 1

6406532042265. ✔ **A** = 1, **B** = 0

6406532042266. ✖ **A** = 0, **B** = 1

6406532042267. ✖ **A** = 0, **B** = 0

Sub-Section Number :	12
Sub-Section Id :	64065388190
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 187 Question Id : 640653611570 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 6 Max. Selectable Options : 0

Question Label : Multiple Select Question

A word is said to be a palindrome if the word obtained by reversing its letters is the same as the original word. For example, madam is a palindrome. The following pseudocode picks up a word **X** from the "Words" table and checks if it is a palindrome or not. The result is stored in a boolean variable called **flag**. Select the correct implementation of the procedure **isPalindrome**. This procedure must return True if the word is a palindrome and False otherwise. It is a Multiple Select Question.

```
wordList = wordToList(X)
flag = isPalindrome(wordList)
**********************
*** Fill the code ***
**********************

Procedure wordToList(X)
    i = 1
    chars = [ ]
    while(i <= X.LetterCount){
        chars = chars ++ [ith letter of X.Word]
        i = i + 1
    }
    return(chars)
End wordToList
```

Options :

```
Procedure isPalindrome(L)
    if(length(L) <= 1){
        return (True)
    }
    if(first(L) != last(L)){
        return (False)
    }
    else{
        return (isPalindrome(rest(init(L))))
    }
End isPalindrome
```

6406532042268. ✔

6406532042269. ✖

```
Procedure isPalindrome(L)
    if(length(L) == 1){
        return(True)
    }
    if(first(L) == last(L)){
        return(isPalindrome(rest(init(L))))
    }
    else{
        return(False)
    }
End isPalindrome
```

6406532042270. ✔

```
Procedure isPalindrome(L)
    if(length(L) <= 1) {
        return(True)
    }
    if(first(L) == last(L)) {
        return(isPalindrome(rest(init(L))))
    }
    else{
        return(False)
    }
End isPalindrome
```

6406532042271. ✖

```
Procedure isPalindrome(L)
    if(length(L) <= 1){
        return(True)
    }
    if(first(L) == last(L)){
        return(True)
    }
    else{
        return(isPalindrome(rest(init(L))))
    }
End isPalindrome
```

Sub-Section Number :	13
Sub-Section Id :	64065388191
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653611571 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (188 to 189)

Question Label : Comprehension

The procedure **calculate** takes two positive integers as arguments and returns an integer. Study the given pseudocode and answer the subquestions.

```
Procedure calculate(i, j)
    if(j == 0){
        return(i)
    }
    return(calculate(j + i, j - 1))
End calculate
```

Sub questions

Question Number : 188 Question Id : 640653611572 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Short Answer Question

What does **calculate**(5, 3) return?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

11

Question Number : 189 Question Id : 640653611573 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

Which of the following is the output returned by **calculate**(y, x)?

Options :

6406532042273. ✔ y + x + (x-1) + ... + 1

6406532042274. ✖ x + (x-1) + ... + 1

6406532042275. ✖ x + y + (y-1) + ... + 1

6406532042276. ✖ x.y

Question Id : 640653611574 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (190 to 191)

Question Label : Comprehension

Consider the given pseudocode, two positive integers, **a** and **b** are the input parameters of procedure mystery, where **a** ≥ **b**.

```
A = mystery(a, b)

Procedure mystery(X, Y)
    if(Y != 0){
        return(mystery(Y, doSomething(X, Y)))
    }
    else{
        return(X)
    }
End mystery

Procedure doSomething(U, V)
    if(U != V){
        C = 0, i = 0
        while(C ≤ U){
            i = i + 1
            C = V * i
        }
        D = U - V * (i - 1)
        return(D)
    }
    else{
        return(0)
    }
End doSomething
```

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 190 Question Id : 640653611575 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

What will the return value of procedure **doSomething(U, V)** represent, where **U ≥ V**?

Options :

6406532042277. ✖ Remainder when **V** is divided by **U**

6406532042278. ✔ Remainder when **U** is divided by **V**

6406532042279. ✖ Quotient when **V** is divided by **U**

6406532042280. ✖ Quotient when **U** is divided by **V**

6406532042281. ✖ Can not say anything

Question Number : 191 Question Id : 640653611576 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

What will **A** represent at the end of the execution?

Options :

6406532042282. ✖ LCM of positive integers, **a** and **b**

6406532042283. ✔ HCF (GCD) of positive integers, **a** and **b**

6406532042284. ✖ Product of integers, **a** and **b**

6406532042285. ✖ Sum of integers, **a** and **b**

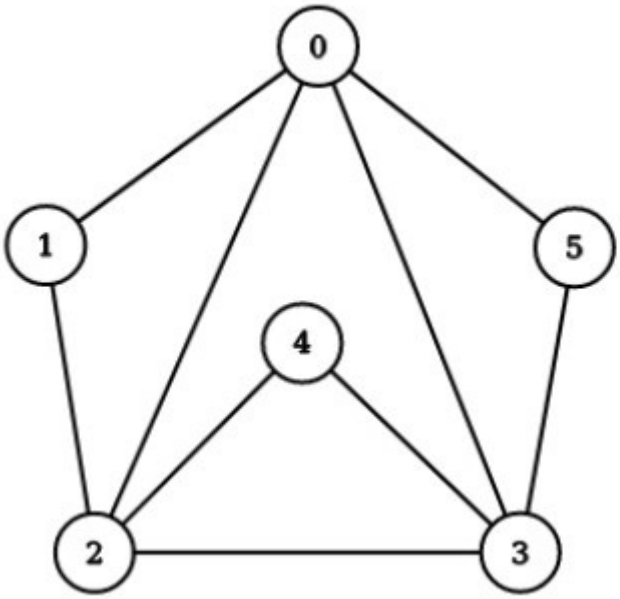
Sub-Section Number :	14
Sub-Section Id :	64065388192
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653611577 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (192 to 193)

Question Label : Comprehension

Consider the following graph with five nodes. **A** is the 6 × 6 adjacency matrix corresponding to this graph.




```
D = {}
L = []
D[4] = -1
D, L = searchPath(A, D, L, 4)

Procedure searchPath(graph, P, S, i)
    S = S ++ [i]
    foreach j in columns(graph){
        if(graph[i][j] == 1 and not(isKey(P, j))){
            P[j] = i
            P, S = searchPath(graph, P, S, j)
        }
    }
    return (P, S)
End searchPath
```

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 192 Question Id : 640653611578 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

What will be the value of **L** after executing the given pseudocode?

Options :

6406532042286. ✖ **L** = [4, 2, 1, 0, 5, 3]

6406532042287. ✔ **L** = [4, 2, 0, 1, 3, 5]

6406532042288. ✖ **L** = [4, 2, 0, 1, 5, 3]

6406532042289. ✖ **L** = [4, 2, 1, 0, 3, 5]

Question Number : 193 Question Id : 640653611579 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

What will be the value of **keys(D)** after executing the given pseudocode?

Options :

6406532042290. ✖ **L** = [4, 2, 1, 0, 5, 3]

6406532042291. ✖ **L** = [4, 2, 0, 1, 3, 5]

6406532042292. ✖ **L** = [4, 2, 0, 1, 5, 3]

6406532042293. ✖ **L** = [4, 2, 1, 0, 3, 5]

6406532042294. ✔ Can not be determined

Sem1 English1

Section Id :	64065341326
Section Number :	8
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	27
Number of Questions to be attempted :	27
Section Marks :	100