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International Education

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COMPUTER SCIENCE	**9618/41**
Paper 41 Computer Science	**May/June 2022**
MARK SCHEME	
Maximum Mark: 75	

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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This document consists of **34** printed pages.

Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks

1(a)	1 mark per mark point
	• declaration of at least 1 array with appropriate identifier
	• … 11 elements (and appropriate data type(s))
	
	Example program code:
	Java
	`Public static String[][] FileData = new String[10][2];`
	
	VB.NET
	`Dim FileData(0 To 9, 0 To 1) As String`
	
	Python
	`FileData = [[""] *2 for i in range(11)] #string`
		2

Question	Answer	Marks
1(b)	1 mark per mark point to max 6 • procedure declaration (and end) • Opening the text file (to read) • Looping 10 times // looping until end of file (e.g. 10 pairs of data) • Reading in **each pair** of lines … • … storing player name and score in data structure(s) • closing the file • Try and catch on file handling … • … with suitable output Example program code: **Java**	**6**

```
public static void ReadHighScores(){
  String Filename = "HighScore.txt";
  try{
    FileReader F = new FileReader(Filename);
    BufferedReader Reader = new BufferedReader(F);
    for(Integer x = 0; x < 10; x++){
      FileData[x][0] = Reader.readLine();
      FileData[x][1] = Reader.readLine();
    }
    Reader.close();
    }catch(FileNotFoundException ex){
      System.out.println("No file found");
    }
    catch(IOException ex){
    System.out.println("No file found");
  }
}
```

Question	Answer	Marks

1(b)	**Python**
	`def ReadHighScores():`
	`  Filename = "HighScore.txt"`
	`  File = open(Filename, 'r')`
	`  for x in range(0, 10):`
	`      FileData[x][0] = File.readline()[:3]`
	`      FileData[x][1] = File.readline()`
	` File.close`
	
	VB.NET
	`Sub ReadHighScores()`
	`  Dim Textfile As String = "HighScore.txt"`
	`  Dim FileReader As New System.IO.StreamReader(textfile)`
	`  Dim DataEntered As Integer = 0`
	`  While FileReader.Peek <> -1 and DataEntered < 10`
	`    FileData(DataEntered, 0) = FileReader.ReadLine()`
	`    FileData(DataEntered, 1) = FileReader.ReadLine()`
	`    DataEntered = DataEntered + 1`
	`  End While`
	`  FileReader.Close()`
	`End Sub`	

Question	Answer	Marks
1(c)	1 mark per mark point • procedure heading and end • looping through all data structure elements • outputting player name, space, score. Each player must start on a new line Example program code:	3

Java

```
public static void OutputHighScores(){
  for(Integer x = 0; x < 11; x++){
    System.out.println(FileData[x][0] + " " + FileData[x][1]);
  }
}
```

Python

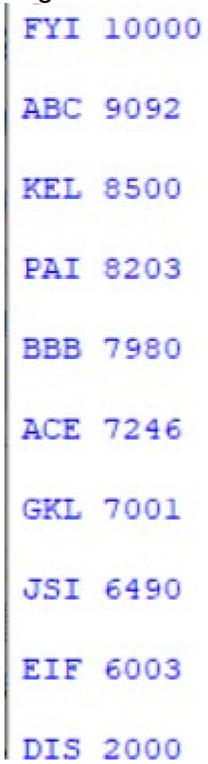
```
def OutputHighScores ():
   for x in range(0, 11):
       Output = FileData[x][0] + " " + FileData[x][1]
       print(Output)
```

VB.NET

```
Sub OutputHighScores ()
  For x = 0 To 10
    Console.WriteLine(FileData(x, 0) & " " & FileData(x,1))
  Next
End Sub
```

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(d)(i)</td><td>1 mark per mark point
• (Main program) calls <code>ReadHighScores()</code>
• … <b>then</b> calls <code>OutputHighScores()</code>

Example program code:
<b>Java</b>
<pre>public static void main(String[] args){
  ReadHighScores();
  OutputHighScores();
}</pre>
<b>Python</b>
<pre>ReadHighScores()
OutputHighScore()</pre>
<b>VB.NET</b>
<pre>Sub Main()
  ReadHighScores()
  OutputHighScore()
  Console.ReadLine()
End Sub</pre></td><td><b>2</b></td></tr>
</table>

Question	Answer	Marks
1(d)(ii)	1 mark for screenshot showing the 10 names and scores from the file (and one extra blank space may, or may not be included) e.g.  FYI 10000 ABC 9092 KEL 8500 PAI 8203 BBB 7980 ACE 7246 GKL 7001 JSI 6490 EIF 6003 DIS 2000	1

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(e)(i)</td><td>

1 mark per mark point

- Read in a username and score
- Validate username input (3-characters, or just selecting the first 3 characters if there **are** definitely 3 characters)
- Validate score input (integer (cast) between 1 and 100 000 inclusive)

Example program code:

Java

```
public static void main(String[] args){
  Scanner scanner = new Scanner(System.in);
  ReadHighScores();
  OutputHighScores();
  String Username = "ABCD"
  do{
    System.out.println("Enter your Username");
    Username = scanner.nextLine();

  }while(Username.length != 3)

  String Score = "-1";
  do{
    System.out.println("Enter your score");
    Score = scanner.nextLine();

  }while(Integer.parseInt(Score) < 1 || Integer.parseInt(Score) > 100000);
}
```

Python

```
Username = "ABCD"
while len(Username) != 3:
    Username = input("Enter your Username")

score = -1
while Score < 1 or Score > 100000:
    Score = int(input("Enter score"))
```

</td><td>3</td></tr>
</table>

Question	Answer	Marks

1(e)(i)	**VB.NET**
	`Console.WriteLine("Enter Username")`
	`Username = "ABCD"`
	`While Username.length <> 3`
	`  Username = Console.ReadLine()`
	`End While`
	`Score = -1`
	`While Score < 1 Or Score > 100000`
	`  Console.WriteLine("Enter score")`
	`  Score = Console.ReadLine()`
	`End While`	

Question	Answer	Marks
1(e)(ii)	1 mark per mark point • procedure declaration (and close where appropriate) taking 1 string and 1 integer parameter • looping through each array element • … finding the position to input the score • storing the array data in the correct position • storing the name **and** score in the correct position	**5**

Example program code:

Java

```
public static void Arrange(String Username, String Score){
  String Temp1; String Temp2; String Second1; String Second2;
  for(Integer x = 0; x < 10; x++){
    if (Integer.parseInt(Score) > Integer.parseInt(FileData[x][1])){
      Temp1 = FileData[x][0];
      Temp2 = FileData[x][1];
      FileData[x][0] = Username;
      FileData[x][1] = Score;
      for(Integer Count = x+1; Count < 10; Count++){
        second1 = FileData[count][0];
        second2 = FileData[count][1];
        FileData[Count][0] = Temp1;
        FileData[Count][1] = Temp2;
        Temp1 = Second1;
        Temp2 = Second2;
        x = 11;
      }
    }
  }
}
```

Question	Answer	Marks

1(e)(ii)	**Python**
	`def Arrange(Username, Score):`
	`    for x in range(0, 10):`
	`        if Score > FileData[x][1]:`
	`            Temp1 = FileData[x][0]`
	`            Temp2 = FileData[x][1]`
	`            FileData[x][0] = Username`
	`            FileData[x][1] = Score`
	`            Count = x+1`
	`            while(Count < 10):`
	`                Second1 = FileData[Count][0]`
	`                Second2 = FileData[Count][1]`
	`                FileData[Count][0] = Temp1`
	`                FileData[Count][1] = Temp2`
	
	`                Temp1 = Second1`
	`                Temp2 = Second2`
	`                Count = Count + 1`
	`                break;`	

Question	Answer	Marks
1(e)(ii)	**VB.NET**	

```
Sub Arrange(Username, Score)
  Dim Temp1 As String
  Dim Temp2 As String
  Dim Second1 As String
  Dim Second2 As String
  For x = 0 To 9
    If Score > Integer.Parse(FileData(x, 1)) Then
      Temp1 = FileData(x, 0)
      Temp2 = FileData(x, 1)

      FileData(x, 0) = Username
      FileData(x, 1) = Score.ToString
      For Count = x + 1 To 9
        Second1 = FileData(Count, 0)
        Second2 = FileData(Count, 1)
        FileData(Count, 0) = Temp1
        FileData(Count, 1) = Temp2
        Temp1 = Second1
        Temp2 = Second2
        x = 10
      Next
    End If
  Next
End Sub
```

Question	Answer	Marks
1(e)(iii)	1 mark per mark point - Calling sorting procedure with correct parameters - Outputting the array before and after procedure call	2

Example program code:

Java

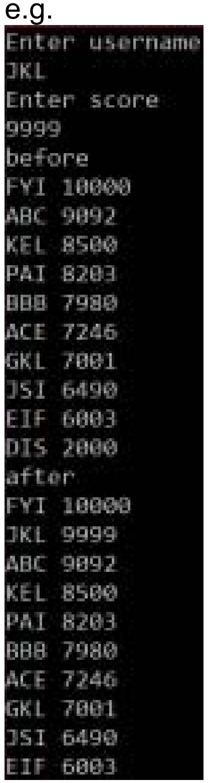
```
public static void main(String[] args){
  Scanner scanner = new Scanner(System.in);
  ReadHighScores();
  OutputHighScores();
  System.out.println("Enter your Username");
  String Username = scanner.nextLine();
  String Score = "-1";
  do{
    System.out.println("Enter your score");
    Score = scanner.nextLine();
  }while(Integer.parseInt(Score) < 0 || Integer.parseInt(Score) > 100000);
  arrange(Username, Score);
  OutputHighScores();
}
```

Python

```
ReadHighScores()
OutputHighScore()
Username = input("Enter your Username")
Score = -1
while Score < 0 or Score > 100000:
    Score = int(input("Enter score"))
Arrange(Username, Score)
OutputHighScore()
```

Question	Answer	Marks

1(e)(iii)	**VB.NET**
	`OutputHighScore()`
	`Username = Console.ReadLine()`
	`Score = -1`
	`While(score < 0 or Score > 100000)`
	`    Score = Console.ReadLine()`
	`End While`
	`Arrange(Username, Score)`
	`OutputHighScore()`	

1(e)(iv)	1 mark for screenshot. JKL, 9999 entered. After shows JKL in the second position.
	e.g.
	
	`Enter username`
	`JKL`
	`Enter score`
	`9999`
	`before`
	`FYI 10000`
	`ABC 9092`
	`KEL 8500`
	`PAI 8203`
	`BBB 7980`
	`ACE 7246`
	`GKL 7001`
	`JSI 6490`
	`EIF 6003`
	`DIS 2000`
	`after`
	`FYI 10000`
	`JKL 9999`
	`ABC 9092`
	`KEL 8500`
	`PAI 8203`
	`BBB 7980`
	`ACE 7246`
	`GKL 7001`
	`JSI 6490`
	`EIF 6003`
		1

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(f)</td><td>

1 mark per mark point to max 4

- procedure header and end (where appropriate) **and** opening the file NewHighScore.txt to write
- Closing the file
- Looping through all 10 array values …
- … writing the username, then the score
- Exception handling **and** appropriate output

Example program code:

Java

```java
public static void WriteTopTen(){
  String Filename = "NewHighScore.txt";
  try{
    FileWriter F = new FileWriter(Filename);
    BufferedWriter Out = new BufferedWriter(F);
    for(Integer x = 0; x < 10; x++){
      Out.write(FileData[x][0] + "\n");
      Out.write(FileData[x][1] + "\n");
    }
      Out.close();
    } catch(Exception e){
    System.err.println("No file");
  }
}
```

Python

```python
def WriteTopTen():
    Filename = " NewHighScore.txt"
    Filename = open(Filename, 'w')
    for x in range(0, 10):
        Filename.write(str(FileData[x][0]) + '\n')
        Filename.write(str(FileData[x][1]) + '\n')
        Filename.close
```

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</table>

Question	Answer	Marks

1(f)	**VB.NET**
	Sub WriteTopTen()
	  Dim Filename As String = " NewHighScore.txt"
	  Dim NewFile As New System.IO.StreamWriter(Filename)
	  For x = 0 To 9
	    NewFile.WriteLine(FileData(x, 0))
	    NewFile.WriteLine(FileData(x, 1))
	  Next
	  NewFile.Close()
	End Sub	

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(a)</td><td>

1 mark per mark point

- Class `Balloon` declaration (and end where appropriate)
- declaration of 3 attributes as private with suitable data types
- constructor header (and end) with **two** parameters …
- … initialising colour and defence item to parameters
- … initialising health to 100

Example program code:

Java

```
class Balloon{
  private Integer Health;
  private String Colour;
  private String DefenceItem;

  public Balloon(String PDefenceItem, String PColour){
    Colour = PColour;
    DefenceItem = PDefenceItem;
    Health = 100;
  }

  public static void main(String[] args){
  }
}
```

Python

```
class Balloon:
#Health as integer
#Colour as string
#DefenceItem as string
def __init__(self, PDefenceItem, PColour):
    self.__Health = 100
    self.__Colour = PColour
    self.__DefenceItem = PDefenceItem
```

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(a)</td><td>

VB.NET

```
Class balloon
  Private Health As Integer
  Private Colour As String
  Private DefenceItem As String

  Public Sub New(PDefenceItem, PColour)
    Health = 100
    Colour = PColour
    DefenceItem = PDefenceItem
  End Sub
End Class
```

</td><td></td></tr>
<tr><td>2(b)</td><td>

1 mark per mark point

- get header and close with no parameter …
- … returning defence item attribute

Example program code:

Java

```
public String GetDefenceItem(){
  return DefenceItem;
}
```

Python

```
def GetDefenceItem(self):
    return self.__DefenceItem
```

VB.NET

```
Public Function GetDefenceItem()
  Return DefenceItem
End Function
```

</td><td>2</td></tr>
</table>

Question	Answer	Marks

2(c)	1 mark per mark point
	• procedure header and close taking 1 parameter …
	• … adding **parameter** value to health attribute
	
	Example program code:
	Java
	`public void ChangeHealth(Integer Change){`
	`  Health = Health + Change;`
	`}`
	
	Python
	`def ChangeHealth(self, Change):`
	`    self.__Health = self.__Health + Change`
	
	VB.NET
	`Public Sub ChangeHealth(Change)`
	`  Health = Health + Change`
	`End Sub`
		2

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(d)</td><td>

1 mark per mark point

- method header and close **and** checking if health attribute is <= 0
- Returning `TRUE` if health attribute <= 0 **and** returning `FALSE` otherwise

Example program code:

Java

```
public Boolean CheckHealth(){
  if(Health <= 0){
    return true;
  }else{
    return false;
  }
}
```

Python

```
def CheckHealth(self):
    if self.__Health <= 0:
       return True
    else:
       return False
```

VB.NET

```
Function CheckHealth()
  If Health <= 0 Then
    Return True
  Else
    Return False
  End If
End Function
```

</td><td>2</td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(e)</td><td>

1 mark per mark point

- take as input defence method **and** colour (2 strings)
- instantiating new balloon object with identifier `Balloon1` …
- … with both input values as parameters

Example program code:

Java

```
public static void main(String[] args){
  Scanner scanner = new Scanner(System.in);
  System.out.println("Enter balloon defence method");
  String Method = scanner.nextLine();
  System.out.println("Enter the balloon colour");
  String Colour = scanner.nextLine();
  Balloon Balloon1 = new Balloon(Method, Colour);
}
```

Python

```
Method = input("Enter balloon defence method ")
Colour = input("Enter the balloon colour ")
Balloon1 = Balloon(Method, Colour)
```

VB.NET

```
Sub Main()
  Console.WriteLine("Enter balloon defence method")
  Dim Method As String = Console.ReadLine
  Console.WriteLine("Enter the balloons colour")
  Dim Colour As String = Console.ReadLine
  Dim Balloon1 As Balloon = New Balloon(Method, Colour)
End Sub
```

</td><td>3</td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(f)</td><td>1 mark per mark point to max 8
• function header (and end where appropriate) <b>and</b> taking balloon object as parameter
• Inputting strength
• Calling <code>ChangeHealth</code> method for the parameter object …
• … with the input as a subtraction
• outputting the defence item for the parameter object …
• … using <code>GetDefenceItem()</code>
• Calling <code>CheckHealth()</code> for the parameter object …
• … outputting <b>appropriate</b> message if <code>TRUE</code> is returned (no health remaining)
• … outputting <b>appropriate</b> message if <code>FALSE</code> is returned (health remaining).
• Returning the <b>updated</b> balloon object

Example program code:
<b>Java</b><pre>
public Balloon Defend(Balloon My Balloon){
  System.out.println("Enter the strength of opponent");
  Scanner scanner = new Scanner(System.in);
  Integer Strength = Integer.parseInt(scanner.nextLine());
  MyBalloon.ChangeHealth(-Strength);
  if(MyBalloon.CheckHealth() == true){
    System.out.println("Defence failed");
  }else {
    System.out.println("Defence succeeded");
  }
  return MyBalloon;
}
</pre></td><td><b>8</b></td></tr>
</table>

Question	Answer	Marks
2(f)		

Python

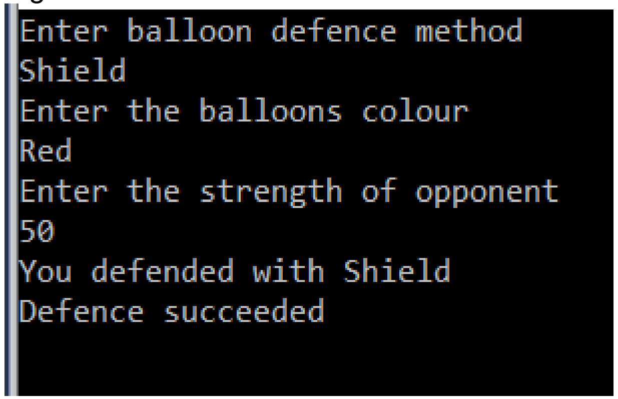
```
def Defend(MyBalloon):
    Strength = int(input("Enter the strength of opponent"))
    MyBalloon.VhangeHealth(-Strength)
    print("You defended with ", str(MyBalloon.GetDefenceItem()))
    if(MyBalloon.CheckHealth() == True):
        print("Defence failed")
    else:
        print("Defence succeeded")
    return MyBalloon
```

VB.NET

```
Function Defend(MyBalloon)
  Console.WriteLine("Enter the strength of opponent")
  Dim Strength As Integer = Console.ReadLine
  MyBalloon.ChangeHealth(-Strength)
  Console.WriteLine("You defended with " & MyBalloon.GetDefenceItem)
  If (MyBalloon.CheckHealth() = True) Then
    Console.WriteLine("Defence failed")
  Else
    Console.WriteLine("Defence succeeded")
  End If
  Return MyBalloon
End Function
```

Question	Answer	Marks

2(g)(i)	1 mark each
	• calling `Defend` with balloon object …
	• … and stores return value over object
	
	Example program code:
	
	Java
	`Balloon1 = Defend(Balloon1);`
	
	Python
	`Balloon1 = Defend(Balloon1)`
	
	VB.NET
	`Balloon1 = Defend(Balloon1)`
		2

2(g)(ii)	1 mark for screenshot with: Shield, Red and 50 input Output stating their defence item was Shield Output says health is not 0 (in some manner) e.g.  Enter balloon defence method Shield Enter the balloons colour Red Enter the strength of opponent 50 You defended with Shield Defence succeeded	**1**

Question	Answer	Marks

3(a)	1 mark per mark point
	• Declaring variables: head pointer, tail pointer and number of items all initialised as 0 (integer)
	• `QueueArray` declared as 1D array as string with 10 elements
	
	Example program code:
	Java
	`public static void main(String[] args){`
	`  String[] QueueArray = new String[10];`
	`  Integer QueueHeadPointer = 0;`
	`  Integer QueueTailPointer = 0;`
	`  Integer NumberOfItems = 0;`
	`}`
	
	Python
	`QueueArray = ['','','','','','','','','',''] #string`
	`QueueHeadPointer = 0 #integer`
	`QueueTailPointer = 0 #integer`
	`NumberOfItems = 0 #integer`
	
	VB.NET
	`Sub Main()`
	` Dim QueueArray(0 To 9) As String`
	` Dim QueueHeadPointer As Integer = 0`
	` Dim QueueTailPointer As Integer = 0`
	` Dim NumberOfItems As Integer = 0`
	`End Sub`
		2

Question	Answer	Marks
3(b)	1 mark per complete statement (5) 1 mark for function heading and end, dealing with ByRef 1 mark for remainder of function correct and following the logic	**7**

```
FUNCTION Enqueue(BYREF QueueArray[] : STRING, BYREF HeadPointer : Integer, BYREF
                 TailPointer : Integer, NumberItems : INTEGER, DataToAdd : STRING) RETURNS
                 BOOLEAN
   IF NumberItems = 10 THEN
      RETURN FALSE
    ENDIF
   QueueArray[TailPointer] ← DataToAdd
   IF TailPointer >= 9 THEN
      TailPointer ← 0
   ELSE
      TailPointer ← TailPointer + 1
   ENDIF
   NumberItems ← NumberItems + 1
   RETURN TRUE
ENDFUNCTION
```

Example program code:

Java

```
public static Boolean Enqueue(String DataToAdd){
  if(NumberOfItems == 10){
    return false;
  }
  QueueArray[QueueTailPointer] = DataToAdd;
  if(QueueTailPointer >= 9){
    QueueTailPointer = 0;
  }else{
    QueueTailPointer = QueueTailPointer + 1;
  }
  NumberOfItems = NumberOfItems + 1;
  return true;
}
```

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>3(b)</td><td>

Python

```
def Enqueue(Queue, Head, Tail, NumItems, InputData):
    if NumItems >= 10:
        return (False, Queue, Head, Tail, NumItems)
    Queue[Tail] = InputData
    if Tail >= 9:
        Tail = 0
    else:
        Tail = Tail + 1
    NumItems = NumItems + 1
    return (True, Queue, Head, Tail, NumItems)
```

VB.NET

```
Function Enqueue(ByRef Queue() As String, ByRef Head As Integer, ByRef Tail As Integer,
        ByRef NumItems As Integer, ByRef InputData As String)
  If NumItems = 10 Then
    Return False
  End If
  Queue(Tail) = InputData
  If Tail >= 9 Then
    Tail = 0
  Else
    Tail = Tail + 1
```

</td><td></td></tr>
</table>

Question	Answer	Marks
3(c)	1 mark per mark point to max 6 • Function header and end • checking if queue is empty … • … returning False • If not empty accessing **and** returning item at head pointer • … incrementing head pointer … • … changing head pointer to 0 if it's more than 9 after incrementing • … decrement number of items	**6**

Example program code:

Java

```
public static String Dequeue(){
  if(NumberOfItems == 0){
    return "FALSE";
  }else{
    String ReturnValue = QueueArray[QueueHeadPointer];
    QueueHeadPointer = QueueHeadPointer + 1;
    if(QueueHeadPointer >= 9){
      QueueHeadPointer = 0;
    }
    NumberOfItems = NumberOfItems - 1;
    return ReturnValue;
  }
}
```

Python

```
def Dequeue(Queue, Head, Tail, NumItems):
    if NumItems == 0:
        return (false, Queue, Head, Tail, NumItems)
    else:
        ReturnValue = Queue(Head)
        Head = Head + 1
        if Head >= 9:
            Head = 0
        NumItems = NumItems - 1
        return(ReturnValue, Queue, Head, Tail, NumItems)
```

Question	Answer	Marks

3(c)	**VB.NET**
	`Function Dequeue(ByRef QueueArray() As String, ByRef QueueHeadPointer As Integer, ByRef QueueTailpointer As Integer, ByRef NumberOfItems As Integer)`
	
	`  If NumberOfItems = 0 Then`
	`    Return "False"`
	`  Else`
	`    Dim ReturnValue = QueueArray(QueueHeadPointer)`
	`    QueueHeadPointer = QueueHeadPointer + 1`
	`    If QueueHeadPointer >= 9 Then`
	`      QueueHeadPointer = 0`
	`    End If`
	`    NumberOfItems = NumberOfItems - 1`
	`    Return ReturnValue`
	`  End If`
	
	`End Function`	

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>3(d)(i)</td><td>1 mark per mark point
• Taking 11 inputs…
• … calling Enqueue with each of the 11 inputs …
• … outputting an appropriate message if added or not added
• Calling Dequeue twice …
• … outputting return value each time

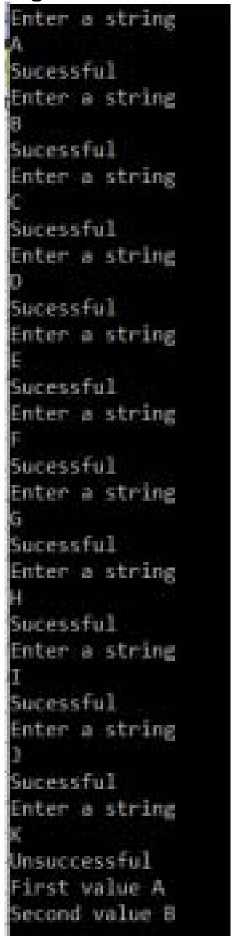
Example program code:
<b>Java</b>
<pre><code>public static void main(String args[]){
  String InputString;
  for(Integer x = 0; x < 11; x++){
    System.out.println("Enter a string");
    Scanner scanner = new Scanner(System.in);
    InputString = scanner.nextLine();
    if(Enqueue(InputString)){
      System.out.println("Successful");
    }else{
      System.out.println("Unsuccessful");
    }
  }
  System.out.println(Dequeue());
  System.out.println(Dequeue());
}</code></pre></td><td>5</td></tr>
</table>

Question	Answer	Marks
3(d)(i)	**Python**	

```
for x in range(0, 11):
    InputString = input("Enter a string")
    ReturnValue, QueueArray, QueueHeadPointer, QueueTailPointer, NumberOfItems =
     Enqueue(QueueArray, QueueHeadPointer, QueueTailPointer, NumberOfItems, InputString)
    if ReturnValue == True:
        print("Successful")
    else:
        print("Unsuccessful")
ReturnValue, QueueArray, QueueHeadPointer, QueueTailPointer, NumberOfItems =
  Dequeue(QueueArray, QueueHeadPointer, QueueTailPointer, NumberOfItems)
print(ReturnValue)
ReturnValue, QueueArray, QueueHeadPointer, QueueTailPointer, NumberOfItems =
  Dequeue(QueueArray, QueueHeadPointer, QueueTailPointer, NumberOfItems)
print(ReturnValue)
```

VB.NET

```
For x = 0 To 10
 Console.WriteLine("Enter a string")
 InputString = Console.ReadLine
 If(Enqueue(QueueArray, QueueHeadPointer, QueueTailPointer, NumberOfItems, InputString))
Then
   Console.WriteLine("Successful")
 Else
   Console.WriteLine("Unsuccessful")
 End If
Next
Console.WriteLine(Dequeue)
Console.WriteLine(Dequeue)
```

Question	Answer	Marks
3(d)(ii)	1 mark for showing inputs and outputs: A – J input and successful. K input and unsuccessful. Output: A, B e.g.  Enter a string A Sucessful Enter a string B Sucessful Enter a string C Sucessful Enter a string D Sucessful Enter a string E Sucessful Enter a string F Sucessful Enter a string G Sucessful Enter a string H Sucessful Enter a string I Sucessful Enter a string J Sucessful Enter a string K Unsuccessful First value A Second value B	1