SPECIALTY: **COMPUTER ENGINEERING**
OPTION: **E-COMMERCE AND DIGITAL MARKETING**
EXAM PAPER: **ALGORITHMIC AND PROGRAMMING**
CODE: **EDM19**
CREDIT VALUE: **4**
DURATION: **3 HOURS**
NATURE OF EXAM: WRITTEN

SECTION A: Web Programming (30 marks)

Examine the HTML code shown below. This code is damaged with errors. Rewrite this HTML code free from errors.

```
<!DOCTYPE html5>
<html>

<head>
     <titles> Tamtam Weekend <titles>
     <titles>The best of Cameroon Television</titles>
<link rel="stylesheet" href="./css/VitaminBBC.css"/>
</head>

<body>
          <header>
               <img src=".\VitaminBBC.png" id="siteLogo"></img>
          </header>
     <nav> <ul>
               <li><a href="./costumedramas.html">Costume Dramas</a>
                    <ul><li><a href="./austen.html">Jane Austen</a></li>
                    <li><a href="./brontes.html">The
Brontes</a></ul></li>
               <li><a href="./mysteries.html">Mysteries</a></li>
     </ol> </nav>

     <article>
         <p class="disclaimer'>DISCLAIMER: These shows may contain mature
     subject matter - viewer discretion is advised.</p>
         <p id="welcome">Welcome! British television is amazing.</p>
     </article>

     <aside>
         <h1>About</h1>
               <p id="welcome">Vitamin BBC is the antidote to mundane
         television. <a link="http://www.bbc.co.uk">Click here to visit
         the BBC's website </p>, which has complete show listings.</p>
         </aside>
     <foot>
      &copy, 2014 (CISC 282)
     <foot>
     </body>

     </html>
```

Part II- Write html for the following table

H1	H2	H3
C1	C2	
	C2	C4

SECTION B: Object Oriented Programming (40 marks)
Circle only one answer in each MCQ (10 marks)

1. which of the following is true about const member functions?
   a. const members can be invoked on both const as well as nonconst objects b. const members can be invoked only on const objects and not on nonconst objects c. nonconst members can be invoked on const objects as well as nonconst objects d. none of the above

2. Which of the following relationship is known as inheritance relationship?
   a. 'has-a' relationship   b. 'is-a' relationship   c. association relationship   d. none of the above

3. If class A is friend of class B and if class B is friend of class C, which of the following is true?
   a. Class C is friend of class A   b. Class A is friend of class C
   c. Class A and Class C do not have any friend relationship   d. None of the above

4. A direct access file is:
   a. A file in which recoreds are arranged in a way they are inserted in a file
   b. A file in which records are arranged in a particular order
   c. Files which are stored on a direct access storage medium
   d. None of the above

5. Which of the following is not a component of file system
   a. Access method   b. Auxiliary storage management   c. Free integrity mechanism
   d. None of the above

6. Seek time is
   a. time taken to retrieve a dta b. Time taken by read/write head mechanism to position itself over appropriate cylinder
   c. Time taken by appropriate sector to come under read/write
   d. None of the above

7. 'Prime area' in context of file system is defined as
   a. It is memory area created by operating system   b. It is an area into which data records are written   c. It is the main area of a web page
   d. None of the above

8. In mulit-list organization
   a. Records that have equivalent value for a given secondary index item are linked together to form a list.
   b. Records are loaded in ordered sequence defined by collating sequence by content of the key
   c. Records are directly accessed by record key field
   d. None of the above

9. Which of the following is/are advantages of cellular partitioned structure:
   a. Simultaneous read operations can be overlapped   b. Search time is reduced
   c. Both a & b   d. None of the above

10. *ptr++ is equivalenet to:
   a. ptr++   b. *ptr   c. ++*ptr   d. None of the above

Structural (30 marks)

11. The program on the opposite page contains several **errors**! Correct the errors and ensure that the program can be executed.

12. Create a C++ program that defines a string containing the following character sequence: `I have learned something new again!` and displays the length of the string on screen. Read two lines of text from the keyboard. Concatenate the strings using `" * "` to separate the two parts of the string. Output the new string on screen.

SECTION C: Algorithmic (30 marks)
Circle only one answer in each MCQ (5 marks)

1. Which operator is evaluated first?
   a.) NOT   b.) AND   c.) XOR   d.) OR

2. How many return statements are allowed in a Function Procedure?
   a.) 0   b.) 1   c.) 2   d.) There is no limit

3. What does your class can hold?
   a.) data   b.) functions   c.) both a & b   d.) none of the mentioned

4. What does inheritance allows you to do?
   a.) create a class b.) create a hierarchy of classes c.) access methods d.) None of the mentioned

5. Where does the execution of the program starts?
   (a) user-defined function (b) main function (c) void function (d) none of the mentioned

Structural questions (25 marks)

6. Explain what Space complexity   of an algorithm means 2marks

7. An algorithm execution time can be said to be worst case, average case, or best case. Define these notations (2x3=6marks)

8. Write an algorithm that receives three numbers and displays the maximum of these numbers using
   i.   Pseudocode

9. Write a function named "location_of_target" that takes as its arguments the following:

(1) an array of integer values;
(2) an integer that tells how many integer values are in the array;
(3) an integer "target value".