FEDERAL BOARD OF INTERMEDIATE AND SECONDARY EDUCATION
H-8/4, ISLAMABAD

Subject: **RESTRUCTURED MODEL PAPERS – COMPUTER SCIENCE CLASSES XI AND XII**

         FBISE persistently strives for improving and standardizing its examination and assessment system. In pursuit of this strive for excellence, it has been decided to restructure Section C of Model Papers in the subject of Computer Science at HSSC level in order to make them compatible with E-Sheet.

2.   In view of the above and in order to use single standardized E-sheet for four science subjects i.e Physics, Chemistry, Biology and Computer Science jointly, section C of the Model Question Papers in the subject of Computer Science for class-XI and XII has been restructured to the extent that number of questions of Section C have been reduced from four to three out of which students will attempt any two questions. Furthermore, marks of each question have been increased from eight (8) to twelve (12).

3.   Model Question Papers have been uploaded accordingly on FBISE website (www.fbise.edu.pk) which may be downloaded.

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COMPUTER SCIENCE HSSC–II
SECTION – A (Marks 15)
Time allowed: 20 Minutes

Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. **Do not use lead pencil.**

Q.1   Fill the relevant bubble for each part. Each part carries one mark.

1.   Which one of the following states transitions is valid?
   A.   Ready to Blocked   ○   B. Blocked to Running   ○
   C.   Running to Ready   ○   D. Terminated to Running   ○

2.   Which one of the following types of processing has grouped transactions, executed in a sequence?
   A.   Real-time   ○   B. Batch   ○
   C.   Time-sharing   ○   D. Distributed   ○

3.   Which one of the following DOS commands is used to display content of the directory?
   A.   DIR   ○   B. CD   ○
   C.   MD   ○   D. VIEW   ○

4.   Identify the type of system conversion in which the old system is directly replaced by the new system:
   A.   Pilot   ○   B. Parallel   ○
   C.   Direct   ○   D. Phased   ○

5.   If a = 10; b = a++;   what will be the value stored in b?
   A.   1   ○   B.   9   ○
   C.   10   ○   D.   11   ○

6.   Which one of the following statements transfers the control to the start of loop body?
   A.   Switch   ○   B.   Continue   ○
   C.   Break   ○   D.   Exit   ○

7.   If $x = 5$, which one of the following accesses the seventh element stored in an array A?
   A.   A[x++]   ○   B.   A[++x]   ○
   C.   A[7]   ○   D.   A[x]   ○

8. The phenomenon of having two or more functions in a program with the same name but different numbers and types of parameters is called:
   A. Inline function   ◯   B. Nested function   ◯
   C. Function overloading ◯   D. Recursive function   ◯

9. The dereference operator is denoted by:
   A. *   ◯   B. &   ◯
   C. **   ◯   D. &&   ◯

10. Which one of the following indicates the address of a variable "temp" of type float?
    A. float temp&   ◯   B. &temp   ◯
    C. &float temp   ◯   D. temp&   ◯

11. Which one of the following is the default access specifier of C++ class?
    A. Private   ◯   B. Public   ◯
    C. Protected   ◯   D. Default   ◯

12. The ability of a class to hide the information from outside interference and misuse is called:
    A. Encapsulation   ◯   B. Polymorphism   ◯
    C. Inheritance   ◯   D. Abstraction   ◯

13. Which one of the following classes inherits the base class capabilities?
    A. Abstract   ◯   B. Parent   ◯
    C. Super   ◯   D. Child   ◯

14. Identify the header file needed to read, write, and manipulate the file:
    A. Ifstream   ◯   B. Ofstream   ◯
    C. Istream   ◯   D. Fstream   ◯

15. Which one of the following functions is used to write a single character to a file?
    A. get( )   ◯   B. gets( )   ◯
    C. put( )   ◯   D. write( )   ◯

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Federal Board HSSC-II Examination
Computer Science Model Question Paper
(Curriculum 2009)

Time allowed: 2.40 hours   Total Marks: 60

Note: Answer any twelve parts from Section 'B' and attempt any three questions from Section
        'C' on the separately provided answer book. Write your answers neatly and legibly.

SECTION – B (Marks 36)

Q.2   Attempt any **TWELVE** parts from the following. All parts carry equal marks. (12×3=36)

  i.   Briefly write down three functions of an Operating System.   (1+1+1)

  ii.   Differentiate between process and thread along with one example of each.   (2+1)

  iii.   Write down the reasons of the following invalid variable names: (3)
         i.   3a   ii.   S$ iii.   float

  iv.   What will be the output of the following program segment?   (1+1+1)
         int x = 3, y = 17;
         cout << x / y << y / x << (y / x) + (x % y);

  v.   Write down the output of the following statements: (1+1+1)
         i.   (x > 0) && (y < 10)   where x = 5, y = 5
         ii.   13 + 21 % 4 – 2
         iii.   int m = 2, n = 4;
                 m *= 2;
                 n += m;

  vi.   Write a C++ program that prints sum of squares of integers from 1 to 10.   (3)

  vii.   Rewrite the following program segment using conditional operator.   (3)
         if (a > b)
                 large = a;
                 else
                 large = b;

  viii. Compare strcpy( ) and strcat( ) functions with examples.   (1+2)

  ix.   Rewrite the program segment after removing errors: (3)
         int a{10}, i;
         cout >> " enter ten numbers ;
            for (i = 1; i < 10: i++)
                 cin << a{i};

  x.   List three advantages of using function overloading in a program.   (1+1+1)

  xi.   Write down the syntax of function prototype for the following functions: (1+1+1)
         a.   A function named **table** with one integer parameter by value.
         b.   A function named **area** with no parameters and returns a float.
         c.   A function named **large** with two floating point numbers by reference.

  xii.   If **ptr** is a pointer variable, what will be the difference among the following
         statements?   (1.5+1.5)
                 cout << **ptr** ;
                 cout << ***ptr** ;

xiii. Define public and private access specifier. (1.5+1.5)
xiv. Define a class **Student** that contains private and public data members including function **get( )**. (3)
xv. Write down the use of bof() and eof() functions. (1.5+1.5)
xvi. Write down the purpose of any three modes of file opening. (1+1+1)

SECTION – C (Marks 24)

Note: Attempt any **TWO** questions. All questions carry equal marks. (2 × 12 = 24)

Q.3(a) Differentiate between Dereference and Reference operators. Write a C++ program that should display **value** and **address** of an integer variable by using Dereference and Reference operators. (2+2=4)

(b) Write a C++ program that reads the integer numbers into a Two-dimensional array and then display the following data: (2+3+3=8)
   i. The average of the numbers in the array
   ii. The maximum number in the array

Q.4 (a) Write a C++ program that displays the following menu: (6)
   Geometry Calculator
   1. Display Area of Circle
   2. Display Area of Rectangle
   3. Quit
   Enter your **choice** (1-3):
   - If user enters **1**, the program should ask for the radius of the circle and then display its area. Use formula: area = πr^2, use 3.14 for π.
   - If user enters **2**, the program should ask for the length and width of the rectangle and then displays its area, use formula: area = length x width.
   - Display an **error message** if the user enters a number outside the range of 1 - 3.

(b) Define a Class declaration named **Inventory** in a retail store with the following members and create an object of that class. (1+1+2+2=6)
   i. Private members named item number, quantity, price, and total cost.
   ii. Constructor to the class that initialize item number, quantity, and price to **0**.
   iii. Public member function **get** to accept data of item number, quantity, and price.
   iv. Public member function **display** to calculate and print total cost of inventory.

Q.5(a) Write down four responsibilities of any two personnel involved in System Development Life Cycle. (2+2=4)

(b) Write a program that computes and displays the charges of a patient stay in hospital. (3+3+2=8)

The program should ask if the patient was admitted as an in-door patient or an out-door patient.
   - If the patient was an in-door patient, the following data should be entered:
      • The number of days spent in the hospital
      • The daily rate
      • Hospital medication charges
      • Charges for hospital services (lab tests, etc.)
   - If the patient was an out-door patient the following data should be entered:
      • Charges for hospital services (lab tests, etc.)
      • Hospital medication charges

The program should use **two overloaded functions** to calculate the total charges. One of the functions should accept arguments for the in-door patient data, while the other function accepts arguments for out-door patient information. Both functions should return the total charges to the main function.

Note: The distribution of marks of the sub-parts of each question of 12 marks may vary according to nature of questions.