ROLL NUMBER

Answer Sheet No. _____

Sign. of Candidate _____

Sign. of Invigilator _____

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.**

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

حصہ اول لازمی ہے۔ اس کے جوابات اسی صفحے پر دے کر ناظم مرکز کے حوالے کریں۔ کاٹ کر دوبارہ لکھنے کی اجازت نہیں ہے۔ لیڈ پنسل کا استعمال ممنوع ہے۔

Fill the relevant bubble against each question:

ہر سوال کے سامنے دیے گئے درست دائرہ کو پر کریں۔

#	Question	A	B	C	D
1.	The && and || operators:	○ Compare two numeric values	○ Combine two numeric values	○ Compare two Boolean values	○ Combine two Boolean values
2.	In a class definition, data or functions designated private are accessible:	○ To any function in the program	○ Only if you know the password	○ To member functions of that class	○ Only to public members of the class
3.	If i, j are integer type and k is long type, k+j would represent which type of value:	○ Integer	○ Float	○ Long	○ Double
4.	In time sharing system, the term that refers to allocation of resources to program for limited amounts of time is called:	○ Time slice	○ Response time	○ Time event	○ Time allocation
5.	The getche() library function:	○ Returns a character when any key is pressed	○ Returns a character when Enter is pressed	○ Displays a character on the screen when any key is pressed	○ Does not display a character on the screen
6.	An array element is accessed using:	○ A first-in-first-out approach	○ The dot operator	○ A member name	○ An index number
7.	Which of the following state transition is **NOT** possible?	○ Blocked to Running	○ Ready to Running	○ Blocked to Ready	○ Running to Blocked
8.	In which SDLC stage the process of training personnel to use the new system is done?	○ System Analysis	○ System Design	○ System Development	○ System Implementation
9.	When the process is having all the resources **except** processor then it is considered in state?	○ Waiting	○ Ready	○ Running	○ New
10.	Which SDLC stage is involved in the monitoring, evaluation, repairing and improving in an already developed system?	○ Development	○ Maintenance	○ Analysis	○ Testing

11.	The expression *test can be said to:	◯ Be a pointer to test	◯ Refer to the contents of test	◯ Dereference test	◉ Refer to the value of the variable pointed to by the test
12.	A pointer is:	◯ The address of a variable	◯ An indication of the variable to be accessed next	◯ A variable for storing addresses	◯ The data type of an address variable
13.	Who spend most of their time in the beginning stages of SDLC in talking with end-users, gathering information, documenting system and processing solutions?	◯ System Analyst	◯ Project Manager	◯ Top Manager	◯ System Designer
14.	A static local variable is used to:	◯ Make a variable visible to several functions	◯ Make a variable visible to only one function	◯ Conserve memory when a function is not executing	◯ Retain a value when a function is not executing
15.	The library function exit() causes an exit from:	◯ The loop in which it occurs	◯ The block in which it occurs	◯ The function in which it occurs	◯ The program in which it occurs

——2HA-I 2212-8121 (HA)——

ROLL NUMBER

COMPUTER SCIENCE HSSC–II

Time allowed: 2:40 Hours

Total Marks Sections B and C: 60

NOTE: Answer any twelve parts from Section 'B' and any three questions from Section 'C'. Use supplementary answer sheet i.e. Sheet–B if required. Write your answers neatly and legibly. Statistical table will be provided on demand.

SECTION – B (Marks 36)

Q. 2 Attempt any TWELVE parts. All parts carry equal marks. (12 x 3 = 36)

(i) Who is programmer? List any four responsibilities of the programmer.

(ii) Briefly describe how is the functionality of a system ensured?

(iii) What kind of program elements are the following?

    a.   4

    b.   '4'

    c.   4.2

    d.   class

    e.   cless()

    f.   "class"

(iv) Answer the following questions:

    a.   Write a statement that displays the variable FBISE in a field 10 characters wide.

    b.   Write a statement that gets a numerical value from the keyboard and places it in the variable temp.

    c.   What header file must be included in program to use setw()?

(v) What is process? And state different process states with their functions.

(vi) Write a do-while loop that displays the numbers from 100 to 10.

(vii) List key differences between process and thread.

(viii) Answer the following questions:

    a.   Write a statement that defines a one-dimensional array called **ABC** of type double that holds 100 elements.

    b.   Write a statement that takes element j of array **PQR** and writes it to cout<<

    c.   Write a statement that defines an array **BILLS** of type int and initializes it to the values of Pakistani currency notes (10,20,50,100,500,1000,5000).

(ix) Look at the following array definition.

    int sales [8][10];

    a.   How many rows does the array have?

    b.   How many columns does the array have?

    c.   How many elements does the array have?

    d.   Write a statement that stores a number in the last column of the last row in the array.

    e.   Write a statement that stores a number in the 7th column of the 3rd row in the array.

    f.   Write a statement that replaces the value of the 7th column of the last row in the array.

(x) Write declarations for two overloaded functions named FBISE(). The both have return type int. The first takes one argument of type char, and the second takes two arguments of type char. If this is impossible, justify why?

(xi) Answer the following questions:

    a.   What is the significance of empty parentheses in a function declaration?

    b.   What is the purpose of using argument names in a function declaration?

    c.   How many values can be returned from a function?

(xii) Write a code that uses a for loop to write the numbers 1 to10 to a file and reads all of the numbers from the file, and displays them.

(xiii) What is a pointer variable? Differentiate between reference operator (&) and dereference operator (*)?

(xiv) Answer the following questions:

    a. Write statements that will create an object called XYZ of the ofstream class and associate it with the file called SALES.txt.

    b. Write an if statement that checks whether an ifstream object called XYZ had reached the end of file.

    c. Write a statement that writes a single character to an object called XYZ, which is of class ofstream.

(xv) Answer the following questions:

    a. Write switch code that prints **Yes** if a variable ch is 'y', prints **No** if ch is 'n', and prints **Unknown response** otherwise.

    b. Write a statement that uses a conditional operator to set **ticket** to 1 if **speed** is greater than 55, and to 0 otherwise.

    c. Write an expression involving a logical operator that is true if **limit** is equal to 55 and **speed** is greater than 55.

(xvi) What three steps must be taken when a file is used by a program?

SECTION – C (Marks 24)

Note: **Attempt any THREE questions. All questions carry equal marks.**   **(3 x 8 = 24)**

Q. 3 **a.** What is an array? Write its advantages. **(04)**

    b. Write a program that lets the user enter 10 values into an array. The program should then display the largest and smallest values stored in the array. **(04)**

Q. 4 Create the equivalent of a four-function calculator. The program should ask the user to enter a number, an operator, and another number. It should then carry out the specified arithmetical operation: Adding, subtracting, multiplying, or dividing the two numbers. Use a **switch** statement to select the operation. Finally, display the result. When it finishes the calculation, the program should ask whether the user wants to do another calculation. The response can be 'y' or 'n'. Some sample interaction with the program might look like this: **(08)**

Example Output

    Ener first number, operator, second number: 10/3

    Answer = 3.333333

    Do another (y/n)? y

    Enter first number, operator, second number: 12+100

    Answer = 112

    Do another (y/n)? n

Q. 5 Raising a number n to a power p is the same as multiplying n by itself p times. Write a function called **power()** that takes a long int value for n and an int value for p, and returns the result as a long int value. Use a default argument of 2 for p, so that if this argument is omitted, the number n will be squared. Write a main() function that gets values from the user to test this function. **(08)**

Q. 6 **a.** Write a class declaration named **Circle** with a private member variable named **radius**. Write **set** and **get** functions to access the **radius** variable, Add a default constructor to the **Circle** the constructor should initialize the radius member to 0. Add on overloaded constructor to the Circle class the constructor should accept an argument and assign its value to the radius member variable. **(04)**

    b. Describe the terms:

      (i) Inheritance

      (ii) Polymorphism

    Each with an example from our daily life. **(04)**