Version No.			

ROLL NUMBER						

Answer Sheet No._____

Sign. of Candidate _____

Sign. of Invigilator _____

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( )	◯

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. (3)

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. (3)

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. (3)

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. (3)

SECTION – C (Marks 24)

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

Q.3 What are the objectives of System Development Life Cycle? Explain the following phases of SDLC: (2+3+3)
Feasibility Requirement Engineering

Q.4 i. Describe any two types of loops. (4)
ii. Write a C++ program that reads a number and prints whether it is prime or composite. (4)

Q.5 Determine the output of the following C++ program and fill the columns of the given table. (2+3+3)

```
void main(void)
{
    int a [6] = {12,27,36,55,72,83};
    int i, s = 0, v=0 ;
    for (i = 0 ; i <= 5; i++)
     {
        if(a [i]  % 3 == 0)
            {
                cout<<a [i] ;
                s = s + a [i];
                v = s * 3 – a [i] % 7;
            }
          cout <<  s << "\t" <<  v;
    }
}
```

i	a[i]	s	v
0			
1			
2			
3			
4			
5			

Q.6 Write a C++ program to calculate the factorial of a number. The program inputs a number and pass it by reference to a user-defined function **factorial**. (4+4)

COMPUTER SCIENCE HSSC-II

Student Learning Outcomes

(Curriculum 2009)

Sr No	Section: Q. No. (Part no.)	Contents and Scope	Student Learning Outcomes *	Cognitive Level **	Allocated Marks in Model Paper
1	A: 1(i)	1.3 Process Management	ii) Describe the new, running, waiting/blocked, ready and terminated states of a process	U	1
2	A:1(ii)	1.1 Introduction to Operating System	iii) Explain the following types of operating system: • Batch processing Operating System • Multi-programming Operating System • Multi-tasking Operating System • Time -Sharing Operating System • Real-Time Operating System • Multi-processor Operating System • Parallel Processing Operating Systems • Distributed Operating Systems • Embedded Operating System	U	1
3	A: 1(iii)	1.1 Introduction to Operating System	ii) Describe commonly used operating systems (DOS, Windows, Unix, Macintosh)	U	1
4	A: 1(iv)	2.1 System Development Life Cycle	v) Explain the following: Deployment/Implementation	K	1
5	A: 1(v)	3.4 Operators in C++	i) Define the following operators and show their use with examples: Increment and decrement operators (++, --) - Prefix - Postfix	U	1
6	A: 1(vi)	4.2 Loops	ii) Use continue statement	U	1
7	A: 1(vii)	5.1 Introduction	iii) Explain the following terms related to arrays • Size of array • Name of array • Index	U	1
8	A: 1(viii)	6.3 Function overloading	iii) Understand the use of function overloading with: • Number of arguments • Data types of arguments • Return types	K	1
9	A: 1(ix)	7.1 Pointers	iv) Know the use of dereference operator (*)	K	1
10	A: 1(x)	7.1 Pointers	ii) Understand memory addresses iii) Know the use of reference operator (&)	U	1
11	A: 1(xi)	8.1 Classes	iii) Understand and access specifier: • Private • Public	U	1
12	A: 1(xii)	8.1 Classes	iv) Know the concept of data hiding	K	1
13	A: 1(xiii)	8.1 Classes	vii) Understand the concept of following only with daily life examples: Inheritance	U	1
14	A: 1(xiv)	9.1 File Handling	ii) Open the file • Modes of opening file	K	1
15	A: 1(xv)	9.1 File	Use the following streams • Single	K	1

		Handling	character		
16	B: 2(i)	1.2 Operating System Functions	Describe the following main functions of operating system: • Process Management • Memory Management • File Management • I/O System Management • Secondary Storage Management • Network Management • Protection System • Command-Interpreter	K	3
17	B: 2(ii)	1.3 Process Management	iii) Differentiate between: • Thread and process	U	2+1
18	B: 2(iii)	3.2 C++ Constants and Variables	i) Explain the difference between constant and variable ii) Explain the rules for specifying variable names	U	3
19	B: 2(iv)	3.2 C++ Constants and Variables 3.4 Operators in C++	vi) Use type casting i) Define the following operators and show their use with examples: Arithmetic operators (+, -, *, /, %)	U	1+1+1
20	B: 2(v)	3.4 Operators in C++	iv) Define and explain the order of precedence of operators	U	1+1+1
21	B: 2(vi)	4.2 Loops	i) Explain the use of the following looping structures: • For • While • Do-while	A	3
22	B: 2(vii)	3.4 Operators in C++ 4.1 Decisions	i) Define the following operators and show their use with examples: Ternary operator (? :) i) Explain the use of the following decision statements: If-else	U	3
23	B: 2(viii)	5.3 Strings	iv) Explain the most commonly used string functions	U	1+2
24	B: 2(ix)	5.1 Introduction	v) Explain how to access and write at an index in an array	U	3
25	B: 2(x)	6.3 Function overloading	ii) Know advantages of function overloading	K	3
26	B: 2(xi)	6.1 Functions	iv) Explain the following terms related to functions • Function prototype • Function definition • Function call	U	1+1+1
27	B: 2(xii)	7.1 Pointers	ii) Understand memory addresses iv) Know the use of dereference operator (*)	U	1.5+1.5
28	B: 2(xiii)	8.1 Classes	iii) Understand and access specifier: • Private • Public	K	3
29	B: 2(xiv)	8.1 Classes	iii) Understand and access specifier: • Private • Public	A	3
30	B: 2(xv)	9.1 File Handling	iii) Know the concept of • BOF • EOF	K	1.5+1.5
31	B: 2(xvi)	9.1 File Handling	ii) Open the file • Modes of opening file	K	3
32	C: 3	2.1 System Development Life Cycle	iii) Describe objectives of SDLC v) Explain the following: • Feasibility • Requirement Engineering	K	2 3 3
33	C: 4	4.1 Decisions	i) Explain the use of the following decision statements: • Else-if	U+A	1+3

		4.2 Loops	ii) Explain the use of the following looping structures: • For • While • do-While		1+3
34	C: 5	5.1 Introduction	iv) Explain how to define and initialize an array of different sizes and data types v) Explain how to access and write at an index in an array vi) Explain how to traverse an array using all loop structures	U	2 3 3
35	C: 6	6.2 Passing arguments and returning values	i) Pass the arguments: • Constants • By value • By reference	A	4 4

*** Student Learning Outcomes**
National Curriculum for Computer Sciences Grades IX-XII, 2009
(Page no. 26-36)

****Cognitive Level**
K: Knowledge
U: Understanding
A: Application

COMPUTER SCIENCE HSSC-II

Table of Specifications

Assessment Objectives		Unit 1: Operating System **10%**	Unit 2: System Development Life Cycle **10%**	Unit 3: Object Oriented Programming Using C++ **10%**	Unit 4: Control Structure **15%**	Unit 5: Arrays and Strings **15%**	Unit 6: Functions **15%**	Unit 7: Pointers **5%**	Unit 8: Objects and Classes **10%**	Unit 9: File Handling **10%**	Marks	Total marks (75 Theory + 25 Practical)	**% age**
Knowledge based	Section - A		1-4-(01)				1-8-(01)	1-9-(01)	1-12-(01)	1-14-(01) 1-15-(01)	**6**	**29**	**30.5%**
	Section - B	2-i-(03)					2-x-(03)		2-xiii-(03)	2-xv-(03) 2-xvi-(03)	**15**		
	Section - C		3(08)								**8**		
Understanding based	Section - A	1-1-(01) 1-2-(01) 1-3-(01)		1-5-(01)	1-6-(01)	1-7-(01)		1-10-(01)	1-11-(01) 1-13-(01)		**9**	**48**	**50.5%**
	Section - B	2-ii-(03)		2-iii-(03) 2-iv-(03) 2-v-(03)	2-vii-(03)	2-viii-(03) 2-ix-(03)	2-xi-(03)	2-xii-(03)			**27**		
	Section - C				4(04)	5(08)					**12**		
Application based	Section - A										**0**	**18**	**19%**
	Section - B				2-vi-(03)				2-xiv-(03)		**6**		
	Section - C				4(04)		6(08)				**12**		
Total marks		**9**	**9**	**10**	**15**	**15**	**15**	**5**	**9**	**8**	**95**		**100%**

KEY: 1-1-(01)

Question No - Part No - (Allocated Marks)