Federal Board **SSC-II** Examination
Computer Science Solution of Model Question Paper
(Curriculum 2009)

SECTION – A

Note: Section-A is compulsory and comprises two pages. All parts of this section are to be answered on the question paper itself. It should be completed in the first 20 minutes and handed over to the Centre Superintendent. Do not use lead pencil.

(Answers are bold and underlined)

(1) What is the output of the following code?

```
int a = 15;
float s = 5.50;
printf ("%f", a/s);
```

    A.   2   **B.   2.72**
    C.   3   D.   5

(2) Which one of the following symbols is used in flow chart for the statement "Marks<33"?

    A.   ▭   B. ⬭

    C. ▱   **D. ◇**

(3) Which one of the following functions is used to read string "Computer Science"?

    A.   scanf( )   **B.   gets( )**
    C.   getchar( )   D   getch( )

(4) Which statement is equivalent to "j=j+a;"?

    A.   j+=a;   B.   j=+a;
    C.   j++a;   D.   j=a++;

(5) Which escape sequence can be used to insert a Tab in "**C**" Language?

    A.   \a   B.   \b
    C.   \t   D.   \n

(6) Which one of the following is the most suitable for making two ways decision?

    A.   if statement   **B.   if-else statement**
    C.   switch statement   D.   Nested-if statement

(7) How many times "FBISE" will be displayed by the following code?

```
for (int i=1; i<10; i=+2)
    printf ("FBISE");
```

    A.   1   **B.   5**
    C.   Infinite   D.   The loop will not run.

(8) What is the output of the following code?
```
int i ;
for(i=1;i<=2;i++)
printf ("\n i=%d", i);
```

    A.   i=2   **B.**   **i =1**
             i=3   **i=2**

    C.   i =1   D.   i =2
             i=3   i=1

(9) Which one of the following gates has an output = A.B?

    A.   NAND   B.   NOR

    C.   OR   **D.**   **AND**

(10) When the input to an inverter is LOW(0) the output will be:

    A. HIGH or 0   B.   LOW or 0

    C. HIGH or 1   D.   LOW or 1

(11) What is the output of following HTML code?

```
<ol>
<li> Magnetic Disk </li>
<li> CD and DVD </li>
</ol>
```

    A. • Magnetic Disk   **B.**   **1. Magnetic Disk**
        • CD and DVD   **2. CD and DVD**

    C. 1. Magnetic Disk   Magnetic Disk
        o CD and DVD   D.   CD and DVD

(12) Which one of the following is correct HTML statements to divide browser window into 3 columns?

    A.   <fram col = 30%, 30%, 40%>
    B.   <framset col = 30%, 30%, 40%>
    C.   <framset col 30%, 30%, 40%>
    D.   <fram row = 30%, 30%, 40%>

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Federal Board SSC-II Examination
Computer Science Solution of Model Question
Paper
(Curriculum 2009)

Time allowed: 2.40 hours

Total Marks: 43

Note: Sections 'B' and 'C' comprise two pages and questions therein are to be answered on the
separately provided Answer Book. Use supplementary answer sheet i.e., sheet B if required.
Write your answers neatly and legibly.

SECTION – B (Marks 27)

Q.2 Attempt any **NINE** parts from the following. All parts carry equal marks. $(9 \times 3 = 27)$

i. What is an algorithm and what is the role of algorithm in problem solving?
Answer:

Algorithm means method, procedure, technique or plan. Algorithm is a step-by-step problem-solving method that is easy to understand and follow. It is a set of steps that clearly defines a sequence of operations to solve a problem.

ROLE OF ALGORITHM IN PROBLEM SOLVING

Algorithm plays an important role in computer programming. Computer programming is the process of taking an algorithm and coding it in a programming language. Formulating an algorithm is the first step for developing a computer program.

ii. Point out valid and invalid variable names.
Answer:

a.	define	Invalid	b.	5name	Invalid
c.	a5	Valid	d.	US$	Invalid
e.	a_b	Valid	f.	f name	Invalid

iii. Write two advantages and one disadvantage of compiler.
Answer:
Advantage:

A compiler is a computer software that translates entireC language program (source program) into machine code (object program) that can be understood and executed by the computer

It also detects syntax errors in the source program and gives hints to the programmer to correct them.

Disadvantage:

It occupies extra memory since it needs to generate a new file.

iv. **Evaluate each of the following expression assuming, a is 2, z is 1.3, c is 1 and d is 3:**

      a.   **b = d/a + d % a**
               b = 3/2 + 3 % 2
               b = 1 + 3 % 2
               b = 1 + 1
               b = 2

      b.   **x = (a + c)/(z + 0.3)**
               x = (2 + 1)/(1.3+ 0.3)
               x = (3)/(1.3+ 0.3)
               x = 3/1.6
               x =1.875

      c.   **y = c / d * a**
               y = 1 / 3 * 2
               y = 0 * 2
               y = 0

v. **Write down the name and purpose of any three format specifiers.**

Answer:

    NAMES OF FORMAT SPECIFIERS:

    %d decimal integer

    %f floating-point (decimal notation)

    %c single character

Integer Format Specifiers (%d)

    The format specifier %d is used to read or print a decimal integer.

Floating-point Format Specifiers (%f)

    The format specifier %f is used to read and print floating-point numbers in decimal notation with a precision of 6 digits after the decimal point.

The Character Format Specifier (%c)

    The character format specifier, %c, is used to read or print a single character.

vi. **Define the following.**

Answer:

    i.   **Control Statement**

        Control Statements in C are **used to execute/transfer the control from one part of the program to another depending on a condition**. These statements are also called as conditional statements.

    ii.   **Conditional Statement**

        Conditional Statements in C programming are used to make decisions based on the conditions. Conditional statements execute sequentially when there is no condition

around the statements. It is also called as branching as a program decides which statement to execute based on the result of the evaluated condition.

vii. What is the conditional operator? Give an example.

Answer:

The conditional operator is also known as **a ternary operator**. The conditional statements are the decision-making statements which depend upon the output of the expression. It is represented by two symbols, i.e. '**?**' and '**:**'. Conditional operators return one value if condition is true and returns another value is condition is false.

Syntax: (Condition? expression1: expression2);

Example: J= (A > 100)? C*D: C+D;

In above example, if A is greater than 100, then product of C and D will be assigned to J otherwise sum of Cand D will be assigned. This is equal to if else conditional statements.

viii. Write a program using while loop to print odd numbers from 1 to 20.

Answer:

```
#include<stdio.h>
#include<conio.h>
int main()
{
int n;
n=1;
while(n<=20)
{
printf("%d\n",n);
n=n+2;
}
getch();
return 0;
}
```

ix. What will be the output of the following code?

```
void main( )  {        int u, i;
for (u = 1; u< = 5; u++)
{        for (i = 1; i< = u; i++)
         {printf("%d \t", i);}
printf("\n");
}        }
```

OUTPUT:

```
1
1      2
1      2      3
1      2      3      4
1      2      3      4      5
```

x. **Construct Truth Table for the following Boolean Expression:**

$$F = \overline{x}\,\overline{y}z + \overline{x}yz + x\overline{y}$$

Answer:

X	Y	Z	$\overline{x}\,\overline{y}z$	$\overline{x}yz$	$x\overline{y}$	$F = \overline{x}\,\overline{y}z + \overline{x}yz + x\overline{y}$
0	0	0	0	0	0	0
0	0	1	1	0	0	1
0	1	0	0	0	0	0
0	1	1	0	1	0	1
1	0	0	0	0	1	1
1	0	1	0	0	1	1
1	1	0	0	0	0	0
1	1	1	0	0	0	0

xi. **Convert the following code into for loop:**

```
int sum = 0, num= 0;
do      {
        sum = sum + num;
        printf ("Enter an integer value");
        scanf("%d", &num);          }
while (num> = 0 &&num< = 15);
```

Answer:

```
int sum = 0, num= 0;

for(int num=0;num>=0 &&num<=15;)

{

sum=sum+num;

printf("Enter an integer value");

scanf("%d", &num);

}
```

xii. **Write down benefits of web portal. Give one example.**

Answer:

Web portal is a website that offers a large variety of services these include online shopping malls, news stock prices, email search engines, etc. Web portals function as a point of access to information on the web.

For example, A school web portal delivers information about the school's historical background, admission requirement, School curriculum, tuition fees structure, School news, student results in a unified way.

xiii. **Use appropriate text formatting tags to define the following. Write example of each.**
Answer:

In HTML, **<fontsize=?>** these tags are used to change the font size. Replace ? symbol with the number in the range 1 to 7. One is the smallest and seven is the largest font size.

For Example <fontsize=3>Information Technology

Result: Information Technology

b. font colour

<fontcolor=?>these tags are used to change the color of text that is within the tags. Replace ? symbol with the color such as black, blue, brown, gray, green, maroon, orange, pink, red, white, yellow etc.

For Example <fontcolor=red> Information Technology

Result: Information Technology

c. font face

<fontface=?> these tags are used to change the font face of the text that is within the tags. Replace? symbol with the font face such as arial, courier, Calibri, times new roman etc.

For Example <fontface=arial>Information Technology
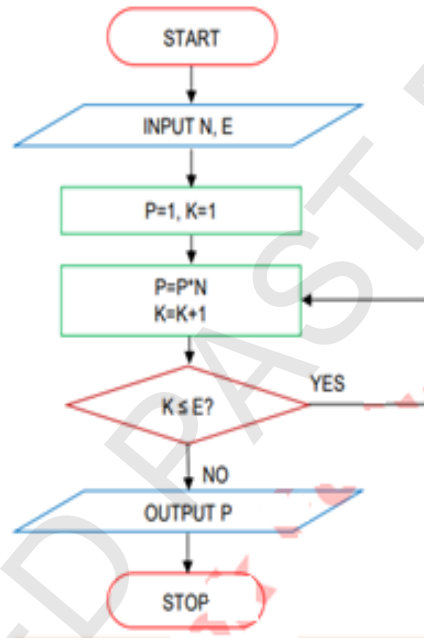
Result: Information Technology

SECTION – C (Marks 16)

Note: **Attempt any TWO questions.** $(8 \times 2 = 16)$

i. **Draw a flowchart to calculate the exponent of a given number.** **(4)**
   <u>Answer:</u>

In this flowchart, the value P represents N raised to the power E.

ii. **Explain any four modules of C programming environment.** **(4)**
   <u>Answer:</u>
   Four modules of C programming environment
   • Text Editor • Compiler • Linker • Loader

   Text Editor
   A text editor is a simple word-processor that is used to create and edit source code of a program .Files created by a text editor are plain text files. Most of the editors automatically highlight compile errors to simplify removing them.

   Compiler
   A compiler is a computer software that translates C language program (source program) into machine code (object program) that can be understood and executed by the computer It also detects syntax errors in the source program and gives hints to the programmer to correct them. A compiler will only create object program if all the syntax errors in a program have been corrected if they existed. A program written in C language has the extension .c (for example first.c) and after compilation the object program extension will be .obj (for example first.obj)

Linker

Linker is a software that translates object program into a single executable program. a linker is a computer program that takes one or more object files generated by a compiler and combines them into one, executable program.

Loader

It is a software that loads programs into memory and then executes them.

Q.4 **Simplify the Boolean Function F, using Karnaugh Mapping (K-map). Also construct logic circuit for the simplified expression.** **(4+4)**

Answer:

$$F = xyz + xy\bar{z} + \bar{x}\bar{y}z + \bar{x}\bar{y}\bar{z} + \bar{x}yz + \bar{x}\bar{y}z$$

	$\bar{y}$	$\bar{y}$	y	Y
$\bar{x}$	0	1	1	0
x	1	1	1	1
	$\bar{z}$	Z	z	$\bar{z}$

F = x + z

Logic Circuit:

Q.5 **i.** **Rewrite the following code after removing the errors: (4)**

```
# include <std.h>
# include <conio.h>
void main ( );
{
int p, s;
printf("\n Enter a number:);
scanf("%d", p);
s=p%2;
if(s=0)
printf("even number%d", p)
els
printf("odd number%d", p);
getch( );
```

Solution:

```
# include <stdio.h>
# include <conio.h>
void main ( )
{
int p, s;
printf("\n Enter a number:);
scanf("%d", &p);
s=p%2;
if(s==0)
printf("even number%d", p);
else
printf("odd number%d", p);
getch( );
}
```

ii.   Convert the following program using switch statement: (4)

```
void main( )
{       char ch; clrscr( );
        printf("Enter a single character");
        scanf("%c", &ch);
        if ( ch = = 'a' || ch = = 'A' ||
            ch = = 'e' || ch = = 'E' ||
            ch = = 'i' || ch = = 'I' ||
            ch = = 'o' || ch = = 'O' ||
            ch = = 'u' || ch = = 'U')
        printf("It is a vowel");
        else    printf("It is a consonant");      }
```

Solution:

```
void main( )
{       char ch;
        clrscr( );
        printf("Enter a single character");
        scanf("%c", &ch);
        switch(ch)
{

                        case 'a':
                        case 'e':
                        case 'i':
                        case 'o':
                        case 'u':
                        case 'A':
                        case 'E':
                        case 'I':
                        case 'O':
                        case 'U':
```

```
                          printf("It is a vowel");
                          break;
                          default:
                          printf("It is a consonant");
            }
            }


                                    * * * * *
```

NOTE:
This is suggested (proposed) solution or answers to the questions given in <u>SECTION-B</u> and <u>C</u>. Students can write any valid alternate answers.