X/23/CSc

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COMPUTER SCIENCE

(FOR CANDIDATES WITH INTERNAL ASSESSMENT)

Full Marks : 80

Pass Marks : 24

(FOR CANDIDATES WITHOUT INTERNAL ASSESSMENT)

Full Marks : 100

Pass Marks : 30

Time : 3 hours

(FOR ALL CATEGORIES OF CANDIDATES)

General Instructions :

(i) The candidates are advised to attempt all questions accordingly.

(ii) Marks allocated to every question are indicated against each.

(iii) Sections A and B are to be answered by all candidates.

(iv) Section C is to be answered by candidates without internal marks.

[P.T.O.

(2)

SECTION—A

(*Maximum Marks* : 30)

(Objective-type Questions)

1. Choose and write the correct answer for the following :

$1 \times 10 = 10$

(a) Which of the following is not a database software?

(i) Oracle

(ii) MS Access

(iii) MS Excel

(iv) SQL Server

(b) Which of the following MS DOS commands starts the MS Editor tool that is used to create and modify text files?

(i) TYPE

(ii) EDIT

(iii) PRINT

(iv) DIR

(c) In which year did CERN launch the WWW project?

(i) 1990

(ii) 1991

(iii) 1992

(iv) 1993

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[Contd.

(3)

(d) Which tag is used to make a list that lists items with numbers?

    (i) <UL>

    (ii) <OL>

    (iii) <LI>

    (iv) <DL>

(e) _____ combines data and functions into a single unit called class.

    (i) Inheritance

    (ii) Data abstraction

    (iii) Polymorphism

    (iv) Data encapsulation

(f) Which among the following is syntax error?

    (i) Indefinite loop

    (ii) Wrong usage of keywords

    (iii) Data type mismatch

    (iv) Wrong output

(g) The Java source code is transferred into the _____ format which does not depend on the target platform.

    (i) hotspot

    (ii) JVM

    (iii) bytecode

    (iv) applet

(h) Which of the following forms of Java is the reusable software component that can be easily assembled to create some new and advanced application?

   (i) JSP

   (ii) JavaBean

   (iii) J2EE

   (iv) JVM

(i) The common virus that affects your application software and displays unwanted text or phrases is

   (i) macro infector

   (ii) boot sector virus

   (iii) direct action virus

   (iv) file infector virus

(j) Which of the following security systems in e-commerce ensures that your information must be intact and there should be evidence that it was received?

   (i) Privacy

   (ii) Integrity

   (iii) Authentication

   (iv) Non-repudiation

(Short Answer-type Questions)

2. Answer any *three* questions in *2–3* sentences each : 2×3=6

(a) Define operating system. Give two examples.

(b) Differentiate between interpreter and compiler.

(c) What are the functions of utilities?

(5)

(d) Write the truth table of NAND gate with two inputs.

(e) Convert $(124)_{10}$ into its binary equivalent.

3. Answer any *three* questions in *2–3* sentences each : 2×3=6

(a) Write any four things required to connect to the Internet.

(b) What is web server? Give one example.

(c) What is URL? Name the different parts of URL.

(d) Differentiate between HTML attributes and HTML elements.

(e) Name the tag and attribute for the following :

(i) To display the background as silver and text color as magenta

(ii) To specify the position of the picture to the top

4. Answer any *two* questions in *2–3* sentences each : 2×2=4

(a) Evaluate the following expressions and display the output :

$$\text{int } x=5, \ y=7, \ z, \ w;$$

(i) $z=(x<=y)?++x:++y;$
cout $<<z;$

(ii) $w=x+y\%2-(x+y);$
cout $<<w;$

(b) Differentiate between while loop and do...while loop.

(c) What is a variable? How can you declare a variable in C++?

(d) List out the common types of errors in C++ program. Name the type of error which cannot be detected by the compiler.

5. Answer any *two* questions in *2–3* sentences each :   2×2=4

(a) What are the two ways to write Java program?

(b) Define data type. Name two primitive data types supported by Java.

(c) Explain the syntax of for loop.

(d) Write the steps to evaluate the following expression :

$$a = x + 2 * y - (x / y);$$

SECTION—B

(*Maximum Marks* : 50)

(Descriptive-type Questions)

[Computer Fundamentals]

6.   *Either*

(a) Define software. What are the two types of software? Explain in brief.   1+2½+2½=6

Or

(b) Write the commands in operating systems to perform the following operations :   1½×4=6

(i) Create a new directory called 'COMPUTER' under the current folder/directory 'SUBJECT'
(in DOS)

(ii) To check the disk D : identify errors if any and correct them
(in DOS)

(iii) To give the address of the path or to print the current working directory path, starting from the root (/)

(in Linux)

(iv) To view/display the content of the file 'Comp.txt'

(in Linux)

7.   *Either*

(a) Perform binary addition of the following binary numbers : $(101101)_2$, $(10010)_2$ and $(100010)_2$. Convert the result to decimal number and write its ASCII equivalent character.   6

Or

(b) What are the primary gates? Write their logic symbols and give their truth tables using two inputs.   1+5=6

[Internet Basics]

8.   *Either*

(a) What are protocols? Name the different types of protocols. Explain the functions of TCP/IP protocol.
1+2+2=5

Or

(b) Explain in brief any five uses of the Internet.   5

9. *Either*

(a) Debug the following HTML codes which are written in bold letters : 1×5=5

   (i) <BASEFONT COLOR = "BLUE" **HEIGHT** = "7">

  (ii) <CAPTION **POSITION** = "TOP"> COMPUTER SC. </CAPTION>

 (iii) <IMG **ALT** = "Book.jpg" **SRC** = "Picture Not Found">

 (iv) **<<COMMENT>>** FIRST HTML PROGRAM **<</COMMENT>>**

  (v) <UL TYPE = **"1"**>

Or

(b) Write an HTML code to display the table as shown below : 5

Name	Subject	Marks
Annie	Mathematics	75
	Science	60
Jack	Mathematics	80
	Science	75

[Object-Oriented Programming I—C++]

10. *Either*

(a) Write a C++ program to generate the Fibonacci series for n number of terms.

[Example : Fibonacci series is 0, 1, 1, 2, 3, 5, 8, 13, ...] 6

Or

(b) Write a program in C++ to print the multiplication table of a given number entered by the user using while loop from 1 to 10.

[Example : 5×1=5

5×2=10

⋮   ]   6

11.   *Either*

(a) Write the output generated by the following program in C++ :   6

```
#include<iostream.h>
using namespace std;
int main()
{
    int no=4, i=1, s, c;
    do
    {
        s=i*i;
        c=i*i*i;
        cout<<i<<"\t"<<s<<"\t"
        <<c<<"\n";
        i+=1;
    } while(i<=no);
    return 0;
}
```

Or

(b) Debug the following C++ program to print the reverse of a number :   6

```
#<iostream.h>include
main int()
{
    int n, rev=0, rem;
    cout >> "Enter the number to reverse";
```

```
cin <<n;
while (n!=0);
{
    rem=n%10;
    rev=rev*10+rem;
    number=number/10;
}
cout<<"Reverse of the number is<<rev;
return 0;
}
```

[Object-Oriented Programming II—Java]

12. *Either*

(a) Write a program in Java to check whether a given number is odd or even.   5

Or

(b) Write a Java program to print the greatest among the three numbers given by the user.   5

13. *Either*

(a) Write the output generated by the following Java program :   5

```
public class Operators
{
    public static void main (String[]args)
    {
        int a=5;
        int b=10;
        int c=15;
        int d=20;
```

```
        System.out.println("a+b="+(a+b));
        System.out.println("a∗b="+(a∗b));
        System.out.println("a++="+(a++));
        System.out.println("−−b="+(−−b));
        System.out.println("c!=d="+(c!=d));
    }
}
```

Or

(b) Debug the following Java program which is in bold letters to print the first 10 natural numbers :   5

```
public class Natural
{
public static void main (String)
{
    i;
    System.out.println("The first 10 natural
    numbers are :\n");
    for (i=1; i<=n; i++)
    {
        System.out.println(n)
    }
    System.out.println(\n);
}
}
```

[Societal Impacts of IT—II]

14.   *Either*

(a) Define the following terms :   2×3=6

   (i) Boot sector virus

   (ii) Data recovery

   (iii) Antivirus software

(**12**)

Or

(b) What is a virus? Give one example. How do viruses spread? How can you protect your computer system? 1+1+2+2=6

SECTION—C

[For Candidates without Internal Assessment]

(*Maximum Marks* : 20)

15. Answer any *five* from the following questions : 2×5=10

(a) What is number system? Name the various number systems.

(b) Differentiate between CUI and GUI.

(c) Convert $(1101)_2$ into $(?)_{10}$.

(d) Define *(i)* web page and *(ii)* web site.

(e) What is the purpose of Exit() statement?

(f) Define Information Technology.

16. Answer any *two* from the following questions : 5×2=10

(a) Write any five characteristics of HTML.

(b) Differentiate between C and C++.

(c) Explain compound assignment operators in Java.

(d) Write five reasons why a cyber attack is launched.

★★★