Total No. of Printed Pages—12

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COMPUTER SCIENCE

(New Course)

(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 are 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 :

    1×10=10

    (a) Which of the following is a single-user operating system?

    (i) Linux

    (ii) Unix

    (iii) MS-DOS

    (iv) MacOS

    (b) Which of the following is the text editor used in Linux command line?

    (i) nano

    (ii) touch

    (iii) cat

    (iv) man

    (c) HTTP stands for

    (i) Hyper Test Transmission Protocol

    (ii) Hypertext Transmission Protocol

    (iii) Hyper Test Transfer Protocol

    (iv) Hypertext Transfer Protocol

(**3**)

(d) Which of the following is a container tag?

   (i)

   (ii) <NOBR>

   (iii) <IMG>

   (iv) <HR>

(e) _____ is the ability of an object to exist in different forms with specific behaviour.

   (i) Polymorphism

   (ii) Overloading

   (iii) Reusability

   (iv) Inheritance

(f) _____ is used to leave a loop even if the condition is not fulfilled. The control is transferred to the statement following the loop body.

   (i) exit()

   (ii) break

   (iii) jump

   (iv) continue

(g) Which of the following forms of Java can execute java code and can perform instructions? (It is a platform-independent execution environment that converts java bytecode to machine language).

   (i) JSP

   (ii) J2EE

   (iii) JDBC

   (iv) JVM

(**4**)

(h) Every Java program must be enclosed in a/an

  (i) main()

  (ii) object

  (iii) class

  (iv) parenthesis

(i) CoolWebSearch and Internet Optimizer are examples of

  (i) spyware

  (ii) Internet apps

  (iii) adware

  (iv) scareware

(j) The most well-known macro virus is

  (i) Vienna

  (ii) Mellisa

  (iii) Disk killer

  (iv) Jerusalem

(Short Answer-type Questions)

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

  (a) What do you mean by software?

  (b) Name the different types of operating system based on their functions.

  (c) How is high-level language different from machine language?

  (d) Convert 1 MB into its equivalent bytes.

  (e) Differentiate between octal and hexadecimal number system.

(5)

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

   (a) Name any four key governing organisations which oversee and standardise the working of the Internet.

   (b) Write any four uses of the Internet.

   (c) What is www?

   (d) Write the tag and attribute for the following :

   (i) To create a table with blue background

   (ii) To make the scrolling text to move from right to left on the screen

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

   (a) Evaluate and write the output for the following C++ codes :

   int x, a=6, b=4;

   (i) x = (a+=b, a*2);
   cout<<x;

   (ii) x = (a−2>b+2)?a++:--b;
   cout<<x;

   (b) Differentiate between variable and constant.

   (c) Define bug and debug.

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

   (a) Write any four characteristics of Java.

   (b) What are logical operators? Name three logical operators with their symbols.

   (c) Write the steps to evaluate the following expression in Java :
   a = y/2−(5+x*3);

(**6**)

SECTION—B

(*Maximum Marks* : 50)

(Descriptive-type Questions)

[Computer Fundamentals]

6. *Either*

(a) Explain any six functions of an operating system. 6

Or

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

(i) Delete all files beginning with SY followed by only four characters and with any extension.
(in DOS)

(ii) List all hidden file names on the screen.
(in DOS)

(iii) Allow the user to change directly from the current directory to the root directory.
(in Linux)

(iv) Move the file **exam.txt** to the directory **myfolder**.
(in Linux)

7. *Either*

(a) Add the following decimal numbers after converting them into their equivalent binary numbers : 6

$(15)_{10}$, $(40)_{10}$, $(63)_{10}$

Or

(b) What are truth tables? Define EXOR and EXNOR gates. Write their truth tables using two inputs.

2+2+2

[Internet Basics]

8. *Either*

(a) What are Protocols? Explain the functions of the protocols TCP/IP, SMTP, HTTP, FTP. 5

Or

(b) Write any five characteristics of HTML. 5

9. *Either*

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

  (i) <BODY BGCOLOR="#ffffff" **MARGIN**=20 VLINK="GREEN"></BODY>

  (ii) <**H7** ALIGN="LEFT">Computer Science</**H7**>

  (iii) <B><I><U>To display the text in Bold, Italics and also to Underline**</B></I></U>**

  (iv) **<<**!--This is the Comment Tag--**>>**

  (v) <A **LINK**="www.names.in" NAME="Flag" TITLE="Click here">Results</A>

(8)

Or

(b) Write the HTML code to display the following Ordered List :   5

   MY HOBBIES

     A. SINGING

     B. DRAWING

     C. PLAYING

   MY FAVOURITE BOOKS

     4. HARRY POTTER

     5. GOOSEBUMPS

     6. CHARLIE AND THE CHOCOLATE FACTORY

   MY FAVOURITE FOOTBALLERS

    VII. MESSI

   VIII. RONALDO

    IX. SUNIL CHHETRI

[Object-Oriented Programming I—C++]

10.   *Either*

(a) Write a program in C++ to display the list of factors of a given number entered by the user.

(Example : the factors of 20 are 1, 2, 4, 5, 10 and 20)   6

Or

(b) Write the C++ program to print 1 to 20 along with their squares and cubes.   6

11.   *Either*

   (a) Give a brief note on different operators used in C++. 6

<div align="center">*Or*</div>

   (b) Debug the following C++ program which are in bold letters to display AP (Arithmetic Progression) series and sum based on the given inputs:
first term *(a)*, common difference *(d)* and number of terms *(n)*   6

(For example, if $a=2$, $d=3$, $n=6$, then AP series is 2, 5, 8, 11, 14, 17 and the sum is 57)

```cpp
#include <iostream.h>
#include <conio.h>
using namespace std;
int main()
{
    int a, d, n, term, sum;
    cout>>"\nEnter the first term, common difference
                        and the number of terms:";
    cin>>a>>d>>n;
    for(int i=1;i<=n;i++)
    {
        term=d+(i-1)*a;
        cout>>term>>",";
        sum=+term;
    }
    cout>>"\nThe sum of the series is ">>sum;
    getch();
    return 0;
}
```

[Object-Oriented Programming II—Java]

12. *Either*

(a) Write a program in Java to reverse an integer number given by the user. 5

[Example : An integer 12345 should be displayed in the reverse order as 54321]

Or

(b) Write a program in Java to find whether a given character is an alphabet, digit or any other character. 5

13. *Either*

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

```java
import java.util.*;
class Output
{
        public static void main (String[] args)
        {
            int count=1, num=5, limit;
            limit=num;
            while(count<=limit)
            {
                System.out.println(num+"X"+
                    count+"=" +num*count);
                num--;
                count++;
            }
        }
}
```

Or

(b) Debug the following Java program which are in bold letters to generate series of first *n* squares of multiples of 5 :   5

```
import java.util.*;
class Debug
{
    public static void main(String[]args)
    {
        n;
        Sc Scanner=new Scanner(System.in);
        System.out.println("Enter the number:");
        n=sc.next();
        for(int i=5; i<=n; i+=5)
            System.out.println("Square of "+i+"is"
                                        +i*2);
    }
}
```

[Societal Impacts of IT–II]

14.   *Either*

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

    (i) Internet hacking

    (ii) Firewalls

    (iii) SSL

Or

(12)

(b) Write any six tips for the efficient use of antivirus software. 6

SECTION—C

[For Candidates without Internal Assessment]

(*Maximum Marks* : 20)

15. Answer the following questions : 2×5=10

(a) Differentiate between Binary and Decimal Number Systems.

(b) Define Web server and Web site.

(c) Write the common types of errors found in C++.

(d) Who developed Java and when?

(e) Name the four main classes of viruses.

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

(a) Convert the Binary numbers into Decimal numbers:
   (i) $(10110)_2$ (ii) $(101110)_2$ 2½+2½

(b) Define HTML, hypertext and hyperlink. 2+2+1

(c) Write any five built-in data types used in C++. 5

(d) Explain any two programming constructs supported by Java. 2½+2½