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COMPUTER SCIENCE

(New Course)

(FOR REGULAR CANDIDATES ONLY)

Full Marks : 80

Pass Marks : 24

Time : 3 hours

The figures in the margin indicate full marks for the questions

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 an open-source operating system?

(i) Mac OS

(ii) MS-DOS

(iii) Microsoft Windows

(iv) Linux

(b) Which of the following DOS commands is used to display the content of a file?

(i) PRINT

(ii) TYPE

(iii) EDIT

(iv) CLS

(2)

- (c) An IP address is a string of _____ bit numeric address.
- (i) 32
 - (ii) 24
 - (iii) 16
 - (iv) 8
- (d) Which of the following is an empty tag?
- (i) <H1>
 - (ii) <P>
 - (iii)

 - (iv) <NOBR>
- (e) Indefinite loop is a/an _____ error.
- (i) logical
 - (ii) execution
 - (iii) syntax
 - (iv) compiler
- (f) The keyword _____ specifies that the value of the variable will not change during the execution of the program in C++.
- (i) fixed
 - (ii) absolute
 - (iii) constant
 - (iv) const

(3)

(g) Java was initially known as

- (i) OK
- (ii) OKA
- (iii) OAK
- (iv) AOK

(h) All Java programs should have _____ function. It is considered as the entry point into the program.

- (i) user-defined
- (ii) main()
- (iii) library
- (iv) static

(i) Malware comprises of

- (i) viruses
- (ii) worms
- (iii) trojans
- (iv) All of the above

(j) Which of the following information security system provisions in e-commerce ensures that your information must not be tampered or damaged?

- (i) Privacy
- (ii) Integrity
- (iii) Authentication
- (iv) Non-repudiation

(4)

(Short Answer-type Questions)

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

- (a) Define system software. What are its functions?
- (b) Differentiate between interpreter and compiler.
- (c) What is the base of a number system? Give example.
- (d) Draw the logical symbol of EXNOR gate with two inputs.
- (e) Convert $(72)_{10}$ into binary equivalent.

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

- (a) Differentiate between internet and intranet.
- (b) List out different types of wired and wireless connections.
- (c) Name any four different types of protocols used over an Internet network.
- (d) Name the tag and attribute for the following :
 - (i) To draw a blue horizontal line in a Web page
 - (ii) To make a bulleted list using the circle bullets

(5)

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

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

```
int x, y=3, z=5;
```

(i) `x=(y>z)?z:y;`

```
cout<<x;
```

(ii) `x=++y-z%3;`

```
cout<<x;
```

(b) List out the important features of Object-Oriented Programming Language.

(c) What do you mean by an identifier?

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

(a) Differentiate between while and do...while loops.

(b) What are relational operators? List all the relational operators with their usage.

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

```
a=6+(b-c%2);
```

(6)

SECTION—B

(*Maximum Marks : 50*)

(Descriptive-type Questions)

[**Computer Fundamentals**]

6.

Either

- (a) Differentiate between CUI and GUI based operating systems with examples for each. 6

Or

- (b) Write the commands in operating system to perform the following operations : $1\frac{1}{2}\times 4=6$
- (i) Display all files with the extension .DOC in the current directory and all its subdirectories (in DOS)
 - (ii) Remove Read-Only attribute from the file REPORT.TXT (in DOS)
 - (iii) Open the file 'test.txt' using the text editor command (in Linux)
 - (iv) Create a directory called 'subdir' in the current directory (in Linux)

7.

Either

- (a) Add $(110111)_2$, $(11110)_2$ and $(1101)_2$. Write the ASCII equivalent character of the result obtained. 6

Or

- (b) What are logic gates? Define AND and OR gate. Write their truth tables using two inputs. $2+2+2=6$

(7)

[Internet Basics]

8. *Either*

(a) What is modem? Explain the functions of a modem. 1+4=5

Or

(b) Explain the functions of different parts of URL. 5

9. *Either*

(a) Debug the following HTML code : 1×5=5

(i) `<BODY TEXT="BLUE" IMAGE="C:\Users\myphoto.jpg" LINK="RED">`

(ii) `<BASEFONT COLOUR="Green" FONTSIZE="6">`

(iii) `<OL TYPE="SQUARE" START="1">`

(iv) ``

(v) `<FRAMES SRC="A.html" NAME="Frame1" SCROLLBAR=Yes>`

Or

(b) Write an HTML code to display the table as shown below (no colour is used) : 5

CLASS MARK REGISTER

| Roll No. | Student Name | Marks | |
|----------|--------------|-------|----|
| | | FA | SA |
| 1. | Abcd | 8 | 27 |
| 2. | Xyz | 7 | 28 |

(8)

[Object-Oriented Programming I—C++]

10.

Either

- (a) Write a program in C++ to display the diameter, circumference and area of a circle based on the radius given by the user (Take $\pi = 3.141592$). 6

Or

- (b) Write a program in C++ to display the odd numbers from 101 to 200. 6

11.

Either

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

```
# include<iostream.h>
using namespace std;
int main()
{
    int count=1, num, sum=0;
    cout << "Enter any five integers:\n";
    while (count <=5)
    {
        cin >> num;
        sum+=num;
        count+=1;
    }
    cout << "The sum of the five integers=" <<sum<< "\n"
    return 0;
}
```

(9)

Or

(b) Debug the following C++ program to find the factorial of a number given by the user :

6

(Example : Factorial of 5 is calculated as
 $5! = 1 \times 2 \times 3 \times 4 \times 5 = 120$)

```
# include<iostream.h>
# include <conio.h>
int main()
{
    int num, fact=1, i=1;
    cout<<"Enter the number:";
    num>>cin;
    if(num<0);
    {
        cout<<"\nInvalid Input"
    }
    else
    {
        do
        {
            fact=fact * i++;
        } while (i<=num)
        cout<<"The factorial of "<num<<" is "<fact;
    }
    getch();
}
```

(10)

[Object-Oriented Programming II—Java]

12.

Either

- (a) Write a program in Java to calculate the sum and average of a set of integer numbers given by the user. The user should be allowed to input numbers as long as he/she wants. 5

Or

- (b) Write a program in Java to find whether a given alphabet is a vowel or a consonant. 5

13.

Either

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

```
class Output
{
    public static void main(String[] args)
    {
        int num=20;
        for(int i=0; i<num; i++)
        {
            if (i%2==0 && i%3 !=0)
                system.out.println(i+" ");
        }
    }
}
```

(11)

Or

- (b) Debug the following program to compare two numbers given by the user : 5

```
import java.util.*;
class Compare
{
    public static main(String[] args)
    {
        sc=new scanner(System.in);
        System.println("Enter the first number:");
        num1=sc.next();
        System.println("Enter the second number:");
        num2=sc.next();
        if (num1>num2)
            System.out.println(num1+"is less than"+num2);
        else if (num2>num1)
            System.out.println(num1+"is greater than"+num2);
        else
            System.out.println(num1+"is not equal to"+num2);
    }
}
```

[Societal Impacts of IT—II]

14. *Either*

- (a) Define the following terms : 2×3=6
- (i) Encryption
 - (ii) Cipher and ciphertext
 - (iii) Decryption

Or

- (b) Write any six common symptoms of computer system infected with computer viruses. 6
