Meghalaya Board of School Education

QUESTION PAPERS

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Total No. of Printed Pages—12

X/24/CSc

2024

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.

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 multiuser, multitasking operating system?

(i) MS Windows

(ii) UNIX

(iii) Linux

(iv) Mac OS

(b) Which of the following Linux commands gives the privilege of System Administrator?

(i) nano

(ii) du

(iii) sudo

(iv) cat

(c) In which year was the word 'Internet' used for the first time?

(i) 1981

(ii) 1982

(iii) 1983

(iv) 1984

(d) Which attribute of <A> tag is used to name a portion of a same document or another document?

(i) HREF

(ii) SRC

(iii) ALT

(iv) NAME

(e) Which of the following components contains declarations that are needed by various identifiers and operators in the source code of C++ program?

(i) Main function

(ii) Declaration section

(iii) Header file

(iv) Executable function

(f) _____ is used to terminate the program. It has no return value.

(i) EXIT()

(ii) Break

(iii) Continue

(iv) Skip

(g) _____ software is used to transfer data based on XML structured documents.

(i) Java Bean

(ii) J2EE

(iii) JSP

(iv) JVM

(h) The number of characters that can be stored by 'char' data type in Java is in the range

(i) 0 to 256

(ii) –128 to 127

(iii) 0 to 65535

(iv) 0 to 32767

(i) The malicious program, that deletes or rewrites the boot sector files is called

(i) macro virus

(ii) Trojan virus

(iii) direct action virus

(iv) boot sector virus



(j) Which of the following softwares is designed to destroy the computer software and comprises of viruses, worms, spyware and Trojans?

(i) Spyware

(ii) Adware

(iii) Malware

(iv) Scareware

(Short Answer-type Questions)

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

(a) What is network operating system?

(b) What is the use of back-up utility?

(c) Differentiate between encryption and decryption.

(d) Convert $(11011)_2$ into its decimal equivalent.

(e) What is a logic gate? List the different types of secondary gates.

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

(a) Explain the functions of a modem.

(b) Define HTTP and Hypertext.

(c) Differentiate between container element and empty element in HTML.

(d) List the attributes of <Img> tag.

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

(i) To display the text slightly above the baseline of the text and in a smaller font size

(ii) To strike a line through the middle of the text

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

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

```
int a, b=5, c=6, d=16;
```

(i)
```
a=((b>c)||(b>d));
cout <<a;
```

(ii)
```
b-=c+d;
cout<<b;
```

(b) Differentiate between abstraction and encapsulation.

(c) Write any four escape sequences and their purposes.

(d) What is a ternary operator? Give an example.

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

(a) What is a Java Servlet?

(b) Define IDE.

(c) Which loop statement is called an entry controlled loop and why?

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

```
x=y/4+(3-z* 3);
```

SECTION—B

(*Maximum Marks* : 50)

(Descriptive-type Questions)

[Computer Fundamentals]

6. *Either*

(a) Explain any four general purpose application softwares. 1½×4=6

Or

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

(i) Display all the files in D: drive starting with "A" having extension .CPP.

(in DOS)

(ii) Delete all the files with extension .JPG from a directory called TEMP.

(in DOS)

(iii) Create a directory called 'school' in the current directory.

(in Linux)

(iv) Move the file 'computer.txt' to the directory 'mydir'.

(in Linux)

7. *Either*

(a) Add the following decimal numbers after converting them into their equivalent binary numbers. Also write the ASCII equivalent character of the result obtained : 6

$(18)_{10}$, $(45)_{10}$, $(35)_{10}$



Or

(b) What are truth tables? Define NAND and NOR gates. Write their truth tables using two inputs.

2+2+2=6

[Internet Basics]

8. *Either*

(a) What is Internet? Explain in brief any four limitations of using the Internet. 1+4=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** = "C:\users\Pictures\lotus.jpg">

(ii) <HR size = **"60%"** width = **"5"**>

(iii) <UL Type = **"1"**>

(iv) <A **src** = "http://www.myschools.html"> About school </A>

(v) **<Frame>** src = "Anchor.html" **</Frame>**

Or

(b) Write an HTML code to display the following nested list : 5

Software

1. System software
   - Operating system
   - Language translator
   - Utility software
2. Application software
   - General purpose application software
   - Specific purpose application software

[Object-oriented Programming I—C++]

10. *Either*

(a) Write a program in C++ to enter an alphabet and check whether it is uppercase or lowercase alphabet. 6

Or

(b) Write a program in C++ to swap values of two integer numbers without using the third variable. 6

11. *Either*

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

```
#include<iostream.h>
using namespace std;
int main()
{
    int i, j;
    for (i=1; i<=4; i++)
    {
        for (j=1; j<=i; j++)
        {
            cout<<j;
        }
    cout<<"\n";
    }
    return 0;
}
```

Or

(b) Debug the following C++ program to print numbers from 1 to any integer number given by the user : 6

```
#include<iostream.h>
using namespace;
int main()
{
    fnum=1; lnum;
    cout<<"Enter the ending number";
    cin>>lnum
    for (fnum<=lnum)
    {
        cout<<lnum<<",";
        fnum--;
    }
    return 0;
}
```

[Object-oriented Programming II—Java]

12. *Either*

(a) Write a program in Java to display the product of the digits of any integer number given by the user.
[Example : if input = 1234, then output = 1 * 2 * 3 * 4 = 24] 5

Or

(b) Write a program in Java to print all the even numbers from 10 to 98 by using do-while loop. 5

13. *Either*

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

```
public class series
{
    public static void main (String[]args)
    {
        int i=1, t=1, sum=0;
        while (i<=4)
        {
            sum +=t;
            system.out.println ("Term="+t);
            t+=3;
            i++;
        }
        System.out.println("Sum of series="+sum);
    }
}
```

Or

(b) Debug the following Java program which are in bold letters to find whether a given year is a leap year or not : 5

```
import java.util.*;
public class leapyear
{
    public static void main (String);
    {
        Scanner sc=new Scanner (System);
        int year;
        System.out.println("Enter the year");
        year=nextInt();
        if(year%4=0)
        {
        System.out.print (year+"is leap year");
        }
        else
        {
        System.out.println (year+"is not leap year");
        }
    }
}
```

[Societal Impacts of IT—II]

14. *Either*

(a) Differentiate antivirus and firewall. Explain the three filtering mechanisms categorised based on the mode of filtering. 1½+1½+3=6

Or

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

(i) Worm

(ii) Spyware

(iii) Incremental Backup

SECTION—C

[For Candidates without Internal Assessment]

(*Maximum Marks* : 20)

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

(a) State any two functions of an operating system.

(b) Define Website and Webpage.

(c) Differentiate between object and class.

(d) Who developed Java and when?

(e) What are variables?

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

(a) Convert the binary numbers into decimal numbers : 2½+2½=5

(i) $(10101)_2$

(ii) $(110110)_2$

(b) Explain the structure of an HTML document.

(c) Explain the three logical operators with their symbols and purpose for each.

(d) What are the symptoms of computer virus?

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