

B.Sc. IT (Part II) Examination, 2014

COMPUTER ORIENTED STATISTICAL METHODS

Part A (Marks: 10)

1. Write formula of Newton Raphson.
2. What is truncation error?
3. Find the sum of $.123 \times 10^3$ and $.456 \times 10^2$ and write the result in three digit mantissa form.
4. Find $\nabla = 1 - \varepsilon^{-1}$.
5. What is symmetric and skew symmetric matrix?
6. What is γ linear equation and trans dental equation?
7. Explain Gauss forward method.
8. Write formula on Newton divided difference formula.
9. Write formula of Regula falsi.
10. What is matrix and determinant?

Part B (Marks: 10)

1. Evaluate

$$\nabla \left[\frac{2^x}{(x+1)!} \right]$$

2. Evaluate the sum

$S = \sqrt{11} + \sqrt{12} + \sqrt{13} + \sqrt{14} + \sqrt{15}$ to 4 significant digit and find its absolute and relative error.

3. Find the following values of the function $f(x)$ for values of x are given as $f(1) = 4$, $f(2) = 5$, $f(7) = 5$, $f(8) = 4$.

4. $A = \begin{pmatrix} 2 & 5 \\ 6 & -1 \end{pmatrix}$ $B = \begin{pmatrix} 8 & 2 \\ 6 & 3 \end{pmatrix}$

$$C = \begin{pmatrix} -1 & 0 \\ 0 & -1 \end{pmatrix}$$

5. Solve the following system of equations using Cramer Rule:

$$x + y + z = 9$$

$$2x + 5y + 7z = 52$$

$$2x + y - z = 0$$

Part C (Marks: 30)

1. (a) Use Gauss Elimination method to solve the following system of eqⁿ:

$$2x + 4y + z = 3$$

$$3x + 2y - 2z = -2$$

$$x - y + z = 6$$

(b) Using Gauss Seidel Method solve the following system of eqⁿ:

$$83x + 11y - 4z = 95$$

$$7x + 53y + 13z = 104$$

$$3x + 8y + 29z = 71$$

OR

(a) Solve the eqn using iteration method

$$2x - \log_{10}X = 7$$

(b) Find the real root of the equation

$$x^3 - 3x - 5 = 0 \text{ correct to four places of decimal by Newton Raphson Method.}$$

2. (a) Find real root of eqn using false position method $x^3 - 2x - 5 = 0$

(b) In an examination the number of candidates who obtain marks between certain limits were as follows:

Marks	0-19	20-39	40-59	60-79	80-99
No. of candidates	41	62	65	50	17

Estimate the number of candidates who obtained less than 70 marks.

OR

(a) Given $f(0) = 8$, $f(1) = 68$ and $f(5) = 123$ construct a divided differences table and find the value of $f(2)$.

(b) Prove that

(i) $\delta[f(x)g(x)] = \mu f(x) \delta g(x) + \mu g(x) \delta f(x)$

(ii) Apply central difference formula to obtain y_{32} given that

$$y_{25} = .2707, y_{30} = .3027, y_{35} = .3386, y_{40} = .3794$$

3. (a) Explain types of matrix

(b) Differentiate between Gauss Jordan and Gauss Elimination Method.

OR

(a) Explain Horner's method.

(b) What is bisection method and successive approximation method.

B.Sc. IT (Part II) Examination, 2014

ANALOG CIRCUIT & COMMUNICATION

Part A (Marks: 10)

1. What is Bridge Rectifier?
2. What is three terminal regulator?
3. What is role of SMPS?
4. What is an Amplifier?
5. Define CMMR (Common Mode Rejection Ratio).
6. What is offset voltage?
7. What is modulation?
8. What is feedback?
9. Define square law diode modulator.
10. What is square wave (A stable) Generator?

Part B (Marks: 10)

1. Draw block diagram of Regulated Power Supply.
2. What is principle and working of Switch Mode Power Supply (SMPS)?
3. Draw a basic Op-Amp circuit.
4. What is Triangular Wave Generator?
5. What do you understand by Demodulation?

Part C (Marks: 30)

1. What is Full Wave Rectifier? Obtain expression for its efficiency, Ripple factor & Regulation.

OR

What is R.C. Coupled Amplifier? Give analysis and frequency response of single stage RC coupled CE Amplifier.

2. How feedback affect for an amplifier.

(i) Gain

(ii) Bandwidth

OR

How feedback affect for an amplifier.

(i) Input Impedance

(ii) Output Impedance

3. Describe AM and FM radio receivers using a block diagram approach.

OR

Discuss following application of Op-Amps.

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CLIENT SERVER TECHNOLOGY

Part A (Marks: 10)

1. Name various development tools in client/server technology.
2. What is the role of server in client/server computing?
3. What is OLE?
4. What do you mean by LAN manager?
5. What is IPC?
6. What is Firewall?
7. What is novel network?
8. Give full form of SMTP.
9. What is WAN?
10. What is server?

Part B (Marks: 10)

1. What is active and passive Hackers?
2. What is cryptography?
3. How RPC plays an important role in network?
4. Define CORBA functions.
5. What do you mean by 3-tier?

Part C (Marks: 30)

1. What do you mean by client/server environment? Explain types of client and types of server in detail.

OR

Explain client/server development tools and advantages of client/server technology.

2. Draw OSI model and explain function of each layer.
3. Explain server operating system with reference to OS/2-2.0 and windows NT.

OR

Write short note on:

- (a) TCP/IP
- (b) Remote File Transfer
- (c) API
- (d) Encryption

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JAVA PROGRAMMING

Part A (Marks: 10)

1. What is final variable?
2. What is stack?
3. Write down the operators which have right associative property.
4. What will be the O/p of

```
x = 5;
```

```
System.out.println(x<<2);
```

5. What is return type of constructor?
 6. What will be output of
- ```
x =3;
```
- ```
y = 4;
```
- ```
System.out.println(x>y? "Hello" : ++x);
```
7. What is default access specifier in class of Java?
  8. What is size of int in Java?
  9. Write down all states of applet.
  10. What is base class of all classes of Java?

### Part B (Marks: 10)

1. What are the differences between C and Java?
2. Write a program to swap two variables without using any temp variable.
3. What is static variable?
4. Write a program to print current date in Java.

5. Write down properties and methods of Frame class.

**Part C (Marks: 30)**

1. What is constructor? Explain various types of constructors in Java with suitable example.

**OR**

What is abstract class? Explain it with suitable example.

2. (a) Explain life cycle of thread

(b) Write a program in Java to set priority of threads in Java. Also explain it.

**OR**

What is JDBC? Explain how we can use JDBC to get data from the database.

3. Explain various methods of graphics. Also write syntax and example for them.

**OR**

Write a program to print the solution of tower of Hanoi problem.

# **B.Sc. IT (Part II) Examination, 2014**

## **COMPUTER GRAPHICS**

### **Part A (Marks: 10)**

1. What is light pen?
2. What is data glove?
3. What is non-impact printer?
4. What is graphic tablet?
5. What is inkjet printer?
6. What is transformation?
7. What is translation?
8. What is general equation of rotation in 2D?
9. Write two applications of computer graphics.
10. What is DVST?

### **Part B (Marks: 10)**

1. What do you mean by scan conversion?
2. Define:
  - (i) Joy stick
  - (ii) Touch Panel
3. What is the difference between Inkjet printer and Laser printer?
4. What do you mean by line clipping?
5. Explain Raster Scan System.

### **Part C (Marks: 30)**

1. Explain DDA algorithm in detail and write down the difference between DDA and Bresenham's algorithm.

**OR**

Explain CRT in detail.

2. Write short note:

(a) Scaling

(b) Sheering

**OR**

What do you understand by Homogenous coordinate system and why we are used Homogenous system?

3. Explain polygon clipping.

**OR**

Explain 3-D view device.

# **B.Sc. IT (Part II) Examination, 2014**

## **OBJECT ORIENTED TECHNOLOGY AND C++ PROGRAMMING**

### **Part A (Marks: 10)**

1. Define the term 'Token'.
2. What is iteration in C++?
3. What do you mean by 'Recursion'?
4. Define the term 'Union'.
5. What is parameterized constructor?
6. What is conditional operator?
7. What do you mean by data member in a class?
8. What is Abstract class?
9. What is Polymorphism?
10. Which are the dynamic memory allocation operators in C++?

### **Part B (Marks: 10)**

1. What is the storage class? Explain.
2. Write a program to print 'Fibonacci Series'.
3. Write a function to find out factorial number.
4. What do you mean by function overloading? Give an example.
5. What do you mean by structure? Explain.

### **Part C (Marks: 30)**

1. Explain the characteristics of object oriented programming.

OR

What do you mean by inheritance? Explain all types of inheritance & also explain with the help of a program.

2. Write short notes:

(a) What is Friend function? Explain with an example.

(b) What is constructor & destructor? Explain with an example.

OR

Write a program in C++ to add two 2D matrix.

3. What do you mean by control statements? Explain in detail.

OR

Explain the following with a suitable example:

(a) Pure Virtual Function

(b) Operator Overloading