

Third Semester B. E. (Electronics and Telecomm.) Examination

COMPUTER PROGRAMMING AND APPLICATION

Paper – 3 XT 02 / 3 XN 02

(USC – 10592)

P. Pages : 3

Time : Three Hours]

[Max. Marks : 80

- Note :** (1) Separate answer book must be used for each section in the subject Geology, Engineering material of Civil branch and separate answer book must be used for Section A and B in pharmacy and Cosmetic Tech.
- (2) Answer **Three** questions from Section A and **Three** questions from Section B.
- (3) Assume suitable data wherever necessary.

SECTION A

1. (a) What is software reuse ? How does it differ from porting ? Name the factors influencing the software reuse. 7
- (b) What is the difference between character and a character string representation ? 7

OR

2. (a) What do you mean by dynamic binding ? How it is useful in object oriented programming ? 7
- (b) Write a C++ program to print the following pattern :---

```
*
*  *
*  *  *
*  *  *  *
```

7

3. (a) Explain briefly concept and use of inline functions. 7
- (b) Define constructor and explain the overloading of constructors with an example. 6

OR

4. (a) Write C++ program to demonstrate usage of function that returns a weight in kilograms after being given weight in pounds. 7
- (b) What is destructor ? List rules about declaring and using destructor. 6
5. (a) What is operator overloading ? Justify the need of operator overloading. 7
- (b) Write a C++ program to overload unary minus (-) operator using friend function. 6

OR

6. (a) With the help of example, demonstrate how object can be converted into basic data type. 7
- (b) Describe the basic rules for overloading unary and binary operators in C++. 6

SECTION B

7. (a) What is polymorphism ? Explain in detail. 7
- (b) What is inheritance ? Explain in detail. 6

OR

8. (a) Describe the rules for implementing virtual functions in C++. 7
- (b) Explain the concept of pointers to function with suitable example. 6
9. (a) Solve the following system of equation using Gauss Elimination Method :—
$$\begin{aligned} 2x + 3y - z &= 5 \\ 4x + 4y - 3z &= 3 \\ -2x + 3y - z &= 1 \end{aligned}$$
 7
- (b) Explain absolute error and relative error and find it for $x = 1 \times 10^{-6}$,
 $\bar{x} = 0.5 \times 10^{-6}$ x is value and $\bar{x}$ is approximate value. 6

OR

10. (a) Find the real root of the equation $x^3 + 2x - 5 = 0$ by using Newton Raphson method. 7
- (b) Find the root of the equation $x^3 - 5x - 7 = 0$ correct upto three decimal places by using Secant method. 6
11. (a) Using Runge-Kutta method of order four, find $y(0.1)$ and $y(0.2)$, given that

$$\frac{dy}{dx} + y + xy^2 = 0; y(0) = 1 \quad 7$$

- (b) Evaluate $\int_1^3 \frac{1}{x} dx$, by using Trapezoidal rule. 7

OR

12. (a) Evaluate $\int_0^{\pi/2} \sqrt{\sin x} dx$ using Simpson's $3/8$ rule taking $h = \pi/12$. 7

- (b) Solve by Euler's method, the equation $\frac{dy}{dx} = x + y$, $y(0) = 0$, choose $h = 0.2$ and compute $y(0.4)$. 7

