FUNDAMENTAL OF COMPUTERS & PROGRAMMING IN C
Paper – CSE-101E

Time Allowed: 3 Hours] [Maximum Marks: 100

Note: Attempt five questions in all, selecting at least one question from each Unit. All questions carry equal marks.

UNIT-I

1. (a) Explain the complementary number representation in Computer systems. How negative numbers are represented? 10
(b) Differentiate between Windows and Linux operating system. 10

2. (a) Convert:
(i) \((732.25)_{10} = (\ldots)_{8}\) 10
(ii) \((2BD)_{16} = (\ldots)_{10}\) 10
(iii) \((110101.100101)_{2} = (\ldots)_{16}\) 10
(iv) \((294.4861)_{10} = (\ldots)_{2}\) 10
(v) \((8932)_{10} = (\ldots)_{16}\) 10
(b) Explain the main features of UNIX operating system. 10
UNIT–II

3. (a) What are the main differences between the working of Interpreter and Compiler? 10
    (b) What is the main role of Linker and Loader? 10

4. (a) Write short notes on hub, switch and router. 7.5
    (b) Compare Transmission Control protocol (TCP) and Internet Protocol (IP) 7
    (c) What Protocols are used in email? Discuss in brief. 5.5

UNIT–III

5. (a) What is Recursion? Explain with the help of sample program. 10
    (b) Write a program to convert a given four digit decimal number into binary. 10

6. (a) Explain typecasting with the help of example. 5
    (b) Using an example, explain local and external variables and also give their scope. 5
    (c) Write a program for Matrix multiplication. 10

UNIT–IV

7. (a) Write a C program to compare two strings without using strcmp(). 10
    (b) Differentiate between structure and union. Write the syntax for the declaration of structure and union. 10
8. (a) How files are managed in C language? What are their utilities?

(b) Explain the operation of following functions:

(i) `fopen()`
(ii) `getc()`
(iii) `putw()`
(iv) `fscanf()`
(v) `ftell()`.