



THE ENGINEERING JUNCTION

TRIBHUWAN UNIVERSITY
INSTITUTE OF ENGINEERING

Examination Control Division
2079 Bhadra

Exam	Regular		
Level	BE	Full Marks	80
Program	All except BAS & BAR	Pass Marks	32
Year / Part	I/I	Time	3 hrs.

Subject: - Computer Programming (CT 401)

- ✓ Candidates are required to give their answer in their own words as far as practicable.
- ✓ Attempt **All** questions.
- ✓ The figures in the margin indicate **Full Marks**.
- ✓ Assume suitable data if necessary.

1. a) Differentiate between system software and application software. Provide relevant examples for each of them. [4]
- b) List the steps involved in solving a problem using a computer. Why do we need an algorithm before writing program code? [2+2]
2. a) Define tokens in C programming language. How are variables declared as constant? Explain with example. [2+2]
- b) Write the output of the following: [6]


```
#include <stdio.h>
int main ( )
{
    char str1 [50], str2 [50] = { 'N' , 'E' , 'P' , 'A' , 'L' };
    scanf("%d[A-Z]",str1);
    printf("%s\n",str1);
    printf("%0.5s\n",str2);
    printf("%5.3s\n",str2);
    printf("%0.3s",str2);
    return 0;
}
```

Input string: KATHmanDU
3. How are break and continue statements used to jump out from the loop? Write a program to evaluate the following series until the term value becomes less than 10^{-6} : [4+6]

$$\cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \frac{x^8}{8!} \dots$$
4. a) Write a syntax of function declaration, function definition and function call in C programming. Can a main function be called recursively in C? Justify your opinion. [3+1]
- b) Explain the use of recursive function with a suitable example. [4]
5. a) Differentiate between array and string. Explain how to declare and use multi-dimensional arrays in C. [3+2]
- b) Write a C program to read a string from the user. Pass the string to a function and sort the alphabets in descending order. For example, if the user entered "exam" then program should display "xmea". [5]
6. a) What is the meaning of data type used in pointer declaration? Define a function in your program to swap two integers using pass by reference. [1+3]
- b) Write a program to find the frequency of a number in array. Explain the relation of pointer and array using this program. [4]
7. Write the purpose and syntax of fopen () and fclose() function. WAP to create a structure book with its member name price and author. Read 10 records from user write it to a file named "book.dat". Read information from book.dat file, search author name "Gotterfried". If found copy the records to a file "gotterfried.dat". [3+7]
8. What are the data types available in FORTRAN? Write a program in FORTRAN to check a number is palindrome or not. [3+5]
9. Write short notes on: [2×4]
 - a) Associativity in C
 - b) Entry and exit control loop