TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2078 Kartik

Exam.		**Back**	
Level	BE	Full Marks	80
Programme	All except BAR	Pass Marks	32
Year / Part	I / I	Time	3 hrs.

Subject: - Computer Programming *(CT 401)*

✓ Candidates are required to give their answers 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) Discuss the recent software trends. Explain in details about the features that a software should include. [2+2]

   b) List out the general rules for flowcharting. What are the errors that might occur during debugging? [2+2]

2. a) What are pre-processor directives? Explain compilation process with suitable block diagram. [1+3]

   b) Why do we need to analyse the problem before solving it? Define tokens, expression and identifiers. [1+3]

3. a) What is the control statement? Write down the classification of control statements. [1+2]

   b) Write down the syntax of a given function. [4×1]

       (i) printf()
       (ii) scanf()
       (iii) getchar()
       (iv) getch()

4. a) Write the output of following program: [3]

```c
int main()
{
char ch='G';
int g=10;
float gravity = 9.81;
printf("%%d%%f\n");
printf("%10d\n", g);
printf("%3c\n", ch);
printf("%.3f\n", gravity);
printf("%-10.1f%d\n", gravity, g);
return 0;
}
```

   b) Define and write syntax of the following: [3×1]

       (i) gets()
       (ii) putchar()
       (iii) scanf()

5. Why do we need loop for programming? Write a program to evaluate the following series. [2+4]

$$cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} \ldots\ldots\ldots + n \ terms$$

6. Why do we need to declare a function? Define formal parameter and actual parameter. Evaluate following series using recursive function. [2+2+4]

$$1, 11, 111, 1111, 11111, \text{.......} \text{ n terms}$$

7. a) Define an array of string with an example. Distinguish between an array and a pointer. [2+2]

   b) Write a C program to insert an element to a desired position to an array using function. The new element to be inserted and desired position should be givne by user. [6]

8. a) Define a void pointer with an appropriate example. [2]

   b) Write a C program that uses pointer to represent two 2-D array of size of m×n and p×q respectively. Find the product of these two matrices if possible otherwise display a message "Calculation cannot be performed" using function. [6]

9. Discuss about nested structure with a suitable example. Create a structure called "student" with data member name, address and id.pass structure to function and sort the information of student on the basis of alphabetical order of "name" and display the result in main() function. [2+6]

10. Write a C program to create a new file named "employee.dat" which consist the information of 10 employees. Employee information includes empName, salary and post. Read the file back to search the word "manager". [6]

11. Explain different format types used in FORTRAN. Mention different data types used in FORTRAN. [3+2]

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