

Tribhuvan University  
**Institute of Science and Technology**  
 2067  
 ☆

Bachelor Level/ First Year/ First Semester/ Science  
**Computer Science and Information Technology (CSc. 102)**  
 (Fundamental of Computer Programming)

Full Marks: 60  
 Pass Marks: 24  
 Time: 3 hours.

*Candidates are required to give their answers in their own words as far as practicable.  
 All questions carry equal marks.*

**Attempt all questions.**

1. Draw the flow chart for the solution of a quadratic equation and write an algorithm and explain it.
2. Find the value of “a” in each of the following statements:  
 int     i = 2, j = 5, k = 7;  
 float   a = 1.5, b = 2.5, c = 3.5;  
 a)     a = c - i/j + c/k;  
 b)     a = (c-i)/k + (j+b)/j;  
 c)     a = b \* b - ((i + j)/c);  
 d)     a = b - k + j/km + i \* c;  
 e)     a = c + k % 2 + b;  
 f)     a = (b + 4) % (c + 2);
3. A machine is purchased which will produce earning of Rs. 20000 per year while it lasts. The machine cost Rs. 120000 and will have a salvage value of Rs. 20000 when it is condemned. If the 12 percent per annum can be earned on alternative investments what should be the minimum life of the machine to make it a more attractive investment compared to alternative investments?
4. Write a program to transpose the following matrix.  

$$A = \begin{vmatrix} -3 & 7 & 5 & -2 & 8 \\ 2 & 5 & 8 & 3 & -4 \\ -6 & 9 & 3 & 6 & 5 \end{vmatrix}$$
5. Write a program that uses a do...while loop to compute and prints the sum of squares given n numbers.
6. Write a function to multiply two n x n matrices.
7. Write a program to count the number of words in sentence.
8. Why pointer is called jewel of C language? Write a program that uses pointers to copy an array of integer.

**OR**

7. Write and test the following power ( ) function that returns x raised to the power n, where n can be any integer:

double power (double x, int p)

8. Justify that pointer is jewel in C language. Write a function that is passed an array of n pointers to floats and returns a newly created array that contains those n float values in reverse order. Assume any necessary data.

**OR**

Explain pointer with suitable diagram. Write a function that uses pointers to search for the address of a given integer in a given array. If the given integer is found, the function returns its address; otherwise it returns NULL.

9. Why structure is required? Make a program using structure of booklist having data members title, author and cost. Enter four data and calculate total cost.
10. Create a text file and enter “to write a good program is very time consuming job”. Create another text which contains reverse of above text.

**OR**

Explain the use of graphical function. Make a program that contains basic graphic functions.

www.csithub.com