

B.Sc. DEGREE EXAMINATION, MAY 2006
(Examination at the end of First Year)
Part II - Information Technology
Paper I : PROGRAMMING USING 'C' LANGUAGE

Time : Three hours

Maximum : 100 marks

Answer any FIVE questions.

1. (a) What is the difference between batch processing and time sharing? What are the relative advantages and disadvantages of each?
(b) Write a C program to find the roots of a quadratic equation $ax^2 + bx + c = 0$ with all validations.
2. (a) Write about different data types, expressions and declarations in C.
(b) Explain about all types of operators (Arithmetic, relational, conditional etc) in C.
3. (a) Explain about 10 differences conversion character for data output in C.
(b) Write a C program to find simple and compound interest. Justify your input data types.
4. (a) Write a program to convert the lower case letters to uppercase and count the letters in a sentence.
(b) Write a C program to check whether a string is a palindrome or not.
5. (a) What is recursion? Write a program using recursion to read a line of text and write it out backwards.
(b) Summarize rules associated with functions prototypes? What is the purpose of each item or group of items?
6. (a) Write a program to multiply two matrices of order $m \times n$ and $p \times q$. State conditions under which they can be multiplied and write the program.
(b) What are multidimensional arrays and how do they differ from one dimensional arrays. Explain with examples.
7. (a) What do you mean by call by value and call by reference? Explain with an example?
(b) What is the final result of the following program segments?
(i)

```
int * x;  
int i = 0  
While i !=0  
x = (int *) malloc (size of (int));
```


(ii)

```
int * x;  
int * y;  
y=(int *) malloc (size of (int));  
x = y  
free (x);
```
8. (a) What are unions? How are they used Explain with an example.
(b) Write a program to add and multiply two vectors $x = (x_1, x_2)$, $y = (y_1, y_2)$ using structures.
$$x + y = (x_1 + y_1, x_2 + y_2) ;$$
$$xy = (x_1y_1 - x_2y_2; x_1y_2 + y_1x_2)$$
9. (a) Explain about the file processing functions in C.
(b) Write a program to create a sequential file of Htno and name.
10. Write short notes on the following:
(a) Comma operator
(b) Static variables
(c) gets and puts functions
(d) error dignostics
