

C 5774

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Name.....

Reg. No.....

**COMBINED FIRST AND SECOND SEMESTER B.TECH. (ENGINEERING)
DEGREE EXAMINATION, JUNE 2005**

EN2K 108/PTCE/PTME/PTCH 2K 105. COMPUTER PROGRAMMING IN C

(Common to all branches)

Time : Three Hours

Maximum : 100 Marks

Part A

Each question carries 5 marks.

1. (a) Differentiate between Algorithm and Flowchart.
(b) Describe that how efficiency of algorithms are measured.
(c) Write and explain basic data types available in C.
(d) Write the similarities and differences between while and do...while loop structures in C.
(e) Write the similarities and difference between arrays and pointers.
(f) Explain with examples the enumerated data variables and their limits.
(g) Explain the term virtual function in OOP with its role in programming.
(h) Explain the benefits of OOP.

(8 × 5 = 40 marks)

Part B

2. (a) Explain the program design methods. (8 marks)
(b) Draw the flowchart to the problem of checking a given integer is prime or not. (7 marks)
- Or*
- (c) Explain with rough diagram of computer the organisation of computers. (8 marks)
(d) Write the flowchart for the problem of interchanging the values of two variables without using the third variable. (7 marks)
3. (a) Write the various operators used in C. (7 marks)
(b) Write a C program, which finds the sum of the digits of an integer, which is taken as input. (8 marks)

Or

- (c) Explain with examples, the simple, multiple conditional operators and their various usage in C. (8 marks)
- (d) Write a C program, which finds the number of digits of the integer taken as input. (7 marks)

Turn over

4. (a) Explain with examples the various basic I/O functions with format instructions. (7 marks)
(b) Write a program, which uses arrays to find the product of 100 digit number and a five digit number.

(8 marks)

Or

- (c) Write a program, which (i) creates an array of pointers to structure each with components name, age and salary (ii) sorting them in the ascending order of age ; (iii) display the details of the persons with $28 \leq \text{age} \leq 45$ and $\text{Rs. } 4,500 \leq \text{salary} \leq \text{Rs. } 7,800$.

(15 marks)

5. (a) Explain with examples various inheritance in C++.

Or

- (b) Explain with a complete example the concept of polymorphism used in C++.

(15 marks)

[4 × 15 = 60 marks]