

Mid Term Examination-2075

SET B

Full marks: 60

Pass marks: 24

Time: 3 hours.

B.Sc.CSIT Bachelor Level/First Semester

C.Programming

Candidates are required to give their answers in their own words as far as practicable. The figures in the margin indicate full marks.

Attempt all Questions.

*[10*6=60]*

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- ✓ 1. What is an algorithm? Write an algorithm and flowchart to check given number is prime or composite. [1+5]
 - ✓ 2. Explain the primary data types used in C with suitable examples. [6]
 - ✓ 3. Write a program in C to accept two numbers n1 and n2 entered by user. Display prime numbers between n1 and n2(including). [6]
 - ✓ 4. Write a program to compute and display the sum of all integers that are divisible by 6 but not divisible by 4 and lie between 0 and 100. The program should also count and display the number of such values. [6]
 - ✓ 5. Explain the usage of break, continue and goto statements in C with syntax and example. [6]
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- ✓ 6. What do you mean by branching? Explain the branching statements of C

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7. What is an array? Write a program in C to find the product of two 3X3 matrices. [1+5]
8. How does String differ from arrays of integer types or floating types? Write a program in C that accepts a string from the user and check if it is a palindrome or not (without using library functions). [1+5]
- ✓ 9. Explain the initialization of a two dimensional array in C. Write a program to Initialize a two dimensional array that represents a matrix of size 3x4 and find its transpose matrix. [2+4]
- ✓ 10. Write short notes on any two (3+3):
- ✓ a. History of C language
 - ✓ b. Conditional Operators
 - c. Executing a C program

Short Answer Questions:

Attempt any eight questions.

(8x5=40)

4. Implement the following functions using multiplexer

$$F(A,B,C,D)=(3,5,6,7,9,14,15)$$

✓5. Design a half adder logic circuit using NOR gates only.

6. Design 1x8 Demultiplexer with NAND gate only.

✓7. If $A=200$ and $B=100$ then perform $A-B$ and $B-A$ using 2's complement

✓8. Design 32x1 MUX using 8x1 MUX and 2x1 MUX.

9. Design a combinational circuit that generates square of 2 bit binary number.

10. Design and explain 4-bit Binary parallel Subtractor with logical diagram.

✓11. Simplify it using K map in both SOP and POS form.

$$F(P,Q,R,S)=\sum (0,1,2) \text{ and } d(P,Q,R,S)=\sum (8,10)$$

12. Convert $F(A,B,C)=ABC+(A'+B')(B+C+AB')$ into product of maxterms. Also find its complement.