



Name : .....  
Roll No. : .....  
Invigilator's Signature : .....

**CS/B.OPTM/SEM-2/BO-205/2010**  
**2010**  
**COMPUTER FUNDAMENTALS AND**  
**PROGRAMMING**

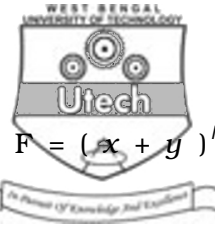
Time Allotted : 3 Hours Full Marks : 70

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

**GROUP – A**  
**( Multiple Choice Type Questions )**

1. Choose the correct alternatives for the following :  $10 \times 1 = 10$
- i) The result of the division of  $11111111/101$  is
    - a) 110011 b) 101011
    - c) 110101 d) 111001.
  
  - ii) The 10's complement of 45932175 is
    - a) 54067834 b) 65178935
    - c) 54067836 d) 54067825.
  
  - iii) The octal equivalent of Hexadecimal number  $(CAB)_{16}$  is (
    - a) 3526 b) 5362
    - c) 6253 d) 6523.

http://www.makaut.com/



iv) By which logic gate, will the output be  $F = (x + y)'$ , where  $F$  = output and  $x, y$  are inputs ?

- a) NAND
- b) XOR
- c) NOR
- d) Inverter.

v) What is the full form of CMOS ?

- a) Control of Memory Output System
- b) Circuit of Memory and Output System
- c) Convert Metal Oxide to Semiconductor
- d) Complementary Metal - Oxide Semiconductor.

vi) Shift is a command of

- a) Config. Sys file
- b) Batch file
- c) .Exe file
- d) .Com file.

vii) What will be the value when you use the function = SEARCH ( "u \* i", "Beautiful Noise", 5 ) in excel cell ?

- a) 4
- b) 5
- c) 7
- d) 8.

viii) What will be the value of  $x$  when you use the expression  $x = 21 \% 5$  in C language ?

- a) 4
- b) 4.2
- c) 0.2
- d) 1



- ix) The break statement is used with
- a) Printf statement                      b) Scanf statement
- c) Do-while statement                  d) Goto statement.
- x) Which DOS Command is used to create logical drive ?
- a) FORMAT                                  b) SUBST
- c) PROMPT                                  d) DIR.

**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following.                      3 × 5 = 15

2. What do you mean by internal and external commands in MS DOS ? Explain with example.
3. Write an algorithm to swap the values of two variables.
4. What do you mean by Data form in MS Excel ?
5. Distinguish between a compiler and an interpreter.
6. Design a full adder using two half adders. Put the truth table of a full adder and find the equation of sum and carry.

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.                      3 × 15 = 45

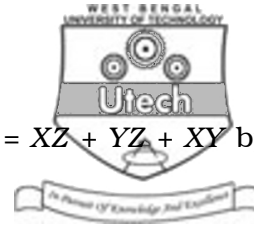
7. a) Explain why NAND gate is called universal gate.
- b) Write a program to calculate if a number is prime or not.
- c) Convert the Octal number into Decimal number :

$$( 4706 )_8 = ( ? )_{10}$$

$$( 127.54 )_8 = ( ? )_{10}$$

$$5 + 6 + 4$$

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8. a) Prove that  $(X + Y)(X + Z)(Y + Z) = XZ + YZ + XY$  by postulates of Boolean algebra. 5 + 8 + 2
- b) Draw that truth table and logical diagram of a full adder.
- c) What is Byte ? 5 + 8 + 2
9. a) Draw the diagram by using NAND gate  $A.\bar{B} + C(A + B)\bar{D}$ .
- b) Write a program to check whether a year is leap year or not.
- c) What is a function ? 8 + 5 + 2
10. a) What is array ? Explain with an example.
- b) Write a program using array to calculate average marks in an exam of 5 students in 5 subjects.
- c) Explain virtual memory. 4 + 8 + 3
11. Write short notes on any *three* of the following : 3 × 5
- a) Internet.
- b) ALU.
- c) I/O device.
- d) Recursion.
- e) Subtractor.

