CS/B.OPTM/SEM-2/BO-205/2011

2011

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)   C is .... level language.
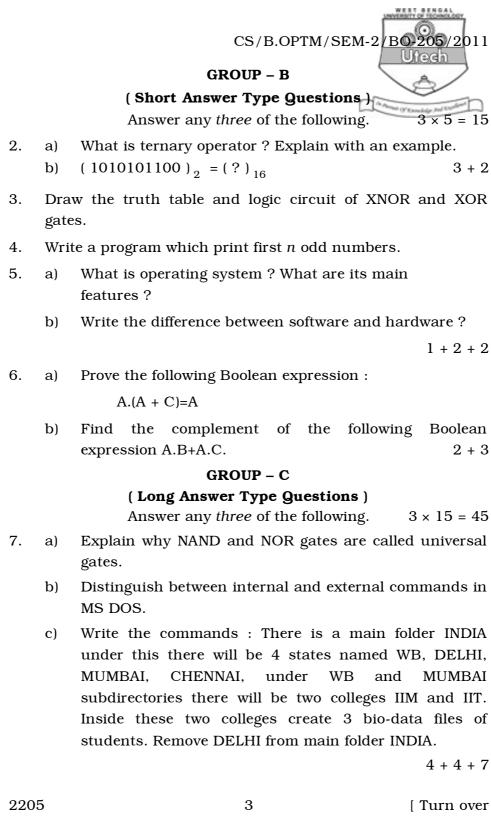
        a)   high   b)   medium

        c)   low   d)   machine.

    ii)   One mega byte(MB) is equal to

        a)   1024 GB   b)   1000 kW

        c)   100000 byte   d)   1024 kB.

    iii)   In Boolean law $X + X$ equals

        a)   X   b)   0

        c)   1   d) $2X$.

    iv)   Logic equation of difference for half subtractor is

        a) $x \approx y$ b) $x + y$

        c) xy d) $\bar{x}\ y$.

v) Which DOS command is used to <u>delete files</u> and <u>directories</u> permanently from the computer ?

   a)   FORMAT   b)   RD

   c)   DELTREE   d)   DEL.

vi) The octal equivalent to binary 1001101 is

   a)   115   b)   77

   c)   4D   d)   221.

vii) What will be the output of the following program ?

```
void main()
{
    int a, b;
    a = 21/5;
    b = 21%5;
printf("%d%d",a,b); }
```

   a)   4 1   b)   1 1

   c)   4 4   d)   Error.

viii) Array index in C by default starts at

   a)   – 1   b)   any value

   c)   0   d)   none of these.

ix) In which standard library file is the function printf() located ?

   a)   stdlib.h   b)   stdio.h

   c)   stdout.h   d)   stdoutput.h.

x) ATTRIB +H makes the file

   a)   read only   b)   normal only

   c)   system only   d)   hidden only.

GROUP – B

(Short Answer Type Questions)

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

2. a) What is ternary operator ? Explain with an example.

    b) $(1010101100)_2 = (?)_{16}$ 　　　　　　3 + 2

3. Draw the truth table and logic circuit of XNOR and XOR gates.

4. Write a program which print first *n* odd numbers.

5. a) What is operating system ? What are its main features ?

    b) Write the difference between software and hardware ?

    　　　　　　　　　　　　　　　1 + 2 + 2

6. a) Prove the following Boolean expression :

    　　A.(A + C)=A

    b) Find the complement of the following Boolean expression A.B+A.C. 　　　　2 + 3

GROUP – C

(Long Answer Type Questions)

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

7. a) Explain why NAND and NOR gates are called universal gates.

    b) Distinguish between internal and external commands in MS DOS.

    c) Write the commands : There is a main folder INDIA under this there will be 4 states named WB, DELHI, MUMBAI, CHENNAI, under WB and MUMBAI subdirectories there will be two colleges IIM and IIT. Inside these two colleges create 3 bio-data files of students. Remove DELHI from main folder INDIA.

    　　　　　　　　　　　　　　　4 + 4 + 7

8. a) What is combination circuit ? Design full adder using two half adders.

    b) Write a program which will calculate sum of the digits of a number.

    c) What is Byte ?   6 + 7 + 2

9. a) Write a program which will swap the value of two variables without using 3rd variable.

    b) Write the differences between RAM & ROM.

    c) Draw 2 to 4 line decoder circuit with truth table.

                                                      5 + 4 + 6

10. a) Write a program which will sort an array. The array must contains 10 elements and the data will be inputted through keyboard from user.

    b) Expalin basic organization of a computer system with diagram.   8 + 7

11. Write short notes on any *three* of the following :   3 × 5

    a) Firewall

    b) Cache Memory

    c) Looping in C

    d) MS office

    e) Input/Output device.