CS/B.OPTM/SEM-2/BO-205/2013

2013

COMPUTER FUNDAMENTALS & 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 × 1 = 10

    i)   ASCII stands for

        a)   American Standard Code for Information Interchange

        b)   American Scientific Code for International Interchange

        c)   American Standard Code for Intelligence Interchange

        d)   American Scientific Code for Information Interchange.

    ii) Main storage is also called

        a)   accumulator   b)   control unit

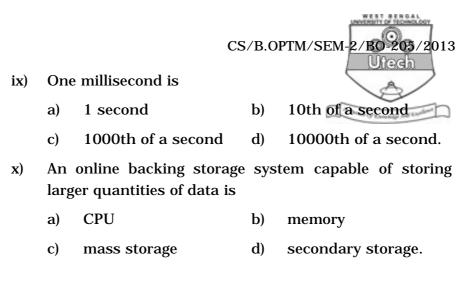   c)   register unit   d)   memory.

iii) Which is valid statement ?

   a)   1 kB = 1024 Bytes   b)   1 MB = 1024 Bytes

   c)   1 kB = 1000 Bytes   d)   1 MB = 1000 Bytes.

iv) After coping the content how many times can you paste ?

   a)   1

   b)   16

   c)   32

   d)   Logically any number of times.

v) Which is called brain of computer ?

   a)   ALU   b)   CPU

   c)   Memory   d)   None of these.

vi) Which is not a valid memory ?

   a)   RAM   b)   NIC

   c)   ROM   d)   EEPROM.

vii) Which of the following is not related to computer ?

   a)   Mouse   b)   Cat

   c)   Light pen   d)   Joystick.

viii) CPU's processing power is measured in

   a)   nanorecords

   b)   minutes

   c)   million instructions per second

   d)   second.

ix) One millisecond is

    a) 1 second   b) 10th of a second

    c) 1000th of a second   d) 10000th of a second.

x) An online backing storage system capable of storing larger quantities of data is

    a) CPU   b) memory

    c) mass storage   d) secondary storage.

GROUP – B
(Short Answer Type Questions)
Answer any *three* of the following.   3 × 5 = 15

2. Which are universal gates and why ?

3. Convert the following :

    a) $4706_8 = ?_{16}$

    b) $1AC_{16} = ?_2$

4.   a) $1000011 + 11111 = ?$

    b) $1011001 - 100001 = ?$

5. A logic circuit has 3 inputs *A*, *B* and *C*. It generates output 1 only when *A* and *B* both take value 1. Draw the logic circuit.

6. Explain different types of memory chips.

GROUP – C
(Long Answer Type Questions)
Answer any *three* of the following.   3 × 15 = 45

7.   a) What are the different types of operators in *C* ? Explain with example.

    b) Write a program in *C* to swap the values of two integer variables without using third variable.

2205   3   [Turn over

c) What is the difference between while loop and do-while loop ?

d) What is pre-processor ? How does it work ? Give an example of pre-processor. 3 + 6 + 3 + (1 + 1 + 1)

8. a) Explain the function of a full adder. Also generate the equations of the sum and carry for the full adder.

b) Create a full adder circuit using two half-adder circuits.

c) Write a program in C to check whether a user given number is prime or not. 6 + 4 + 5

9. a) Draw the Von Neumann architecture of a digital computer.

b) Differentiate between software and hardware.

c) What are the basic jobs of an operating system ?

d) Differentiate between a ROM and a RAM. 5 + 3 + 5 + 2

10. a) Prove that $(X + Y) . (X + Z) . (Y + Z) = XZ + YZ + XY$ by postulates of Boolean algebra.

b) Define an array. Write a C program to find out the greatest element of an integer array of size 5.

5 + (2 + 8)

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

a) Loader

b) Firewall

c) Virtual memory

d) De Morgan's law

e) ALU.