



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**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 :  $10 \times 1 = 10$

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 copying 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
- 1 second
  - 10th of a second
  - 1000th of a second
  - 10000th of a second.
- x) An online backing storage system capable of storing larger quantities of data is
- CPU
  - memory
  - mass storage
  - secondary storage.

### GROUP - B

#### ( Short Answer Type Questions )

Answer any *three* of the following.  $3 \times 5 = 15$

- Which are universal gates and why ?
- Convert the following :
  - $4706_8 = ?_{16}$
  - $1AC_{16} = ?_2$
- $1000011 + 11111 = ?$
  - $1011001 - 100001 = ?$
- 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.
- Explain different types of memory chips.

### GROUP - C

#### ( Long Answer Type Questions )

Answer any *three* of the following.  $3 \times 15 = 45$

- What are the different types of operators in *C* ? Explain with example.
  - Write a program in *C* to swap the values of two integer variables without using third variable.



- 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 :  $3 \times 5$
- a) Loader
- b) Firewall
- c) Virtual memory
- d) De Morgan's law
- e) ALU.