

## Paper First : 2013 Annual Computer Hardware

### UNIT - 1

What are the essential components of a Computer ? Draw the schematic block diagram of a computer showing its essential components. Discuss the function of each component.

OR

- (a) Solve the following :
- |                             |                               |
|-----------------------------|-------------------------------|
| (ii) $(41)_{10} = ( )_2$    | (i) $(101)_2 = ( )_{10}$      |
| (iv) $(67)_{10} = ( )_{16}$ | (iii) $(4B8)_{16} = ( )_{10}$ |
|                             | (v) $(56)_8 = ( )_{10}$       |
- (b) Give the names of important operating systems. Explain the main features of MS- DOS and UNIX.

### UNIT - 2

- (a) What is the full form of ASCII ? What is the maximum number of characters which can be represented by these codes ? Discuss its area of application.
- (b) What are the advantages of grey codes ? Discuss their area of application.

OR

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What are logical gates ? Discuss AND operation. Draw the blok diagram of 2 Input AND Gate. Give its truth table.

### UNIT - 3

- (a) What is Boolean algebra ? Write the basic laws of boolean algebra?
- (b) Proof the de - Morgan's theorem for 2 variables.

OR

- (a) What is half adder ? Write truth table for a half adder. Develop its logic diagram.
- (b) Simplify the logic expression :  $X\bar{Y}\bar{Z} + X\bar{Y}Z\bar{W} + X\bar{Z}$

### UNIT - 4

- (a) What is D flip - flop ? What is its advantage over S - R flip - flop ?
- (b) What is flip - flop ? What is its function ?

OR

- (a) Discuss the functions of encoder and decoder.
- (b) What are digital multiplexer ? Explain their operating principles.

### UNIT - 5

What are the different types of memory ? Discuss their merits - de merits and area of application.

OR

What is the function of a Shift Register ? What are its various types ? Where are such registers used ?

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