

BSCEL601 - Core Electronics Paper-I : Digital Electronics-I

P. Pages : 1

GUG/S/25/16772

Time : Two Hours



Max. Marks : 40

- Notes : 1. All questions are compulsory and carry equal marks.
 2. Draw neat and well-labelled diagrams wherever necessary.

1. A) What is the Binary number system? Explain the conversion of binary numbers to decimal number method with a suitable example. 8

OR

 B) Explain the hexadecimal number system and method of conversion of hexadecimal numbers to decimal number system with suitable examples. 8
2. A) Explain the BCD code and BCD addition method with a suitable example. 8

OR

 B) Explain Excess 3 code its addition method with a suitable example. 8
3. A) Explain the AND, OR, NOT gate with a suitable logic diagram and its truth table. 8

OR

 B) Construct the AND, OR and NOT using NAND gate. 8
4. A) State and prove De Morgans Theorem. 8

OR

 B) Prove: 8
 - i) $A + \bar{A}B = A + B$ and draw the logic diagram.
 - ii) $A + BC = (A + B)(A + C)$ and draw the logic diagram.
5. Attempt **any eight** of the followings: 1x8
=8
 - a) $(11110)_2 = (\dots)_{10}$
 - b) $(39)_{10} = (\dots)_2$
 - c) $(24)_H = (\dots)_{10}$
 - d) What is parity code?
 - e) $(1010)_2 + (0011)_2 = (\dots)_2$
 - f) Perform $(11111)_2 - (1110)_2$ using 1's complement method
 - g) Write the Boolean equation of OR gate.
 - h) What is the universal gate?
 - i) Draw the logic symbol of the X-OR gate.
 - j) Write the equation of associative law.
 - k) What is the double inversion theorem?
 - l) Draw the logic diagram of XOR gate as inverter.
