F.Y.B.Sc.(Part-I)(With Credits)-Regular-Semester 2012 Sem II

2SELE-T1-Electronics Paper-I
(Digital Electronics and Computer Fundamentals)

P. Pages : 2 **GUG/W/17/5573**

Time : Three Hours * 0 4 2 6 * Max. Marks : 50

Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat diagrams wherever necessary.
3. Use of log table / calculator is allowed.

1. Either

a) Perform following conversion (show calculation) **10**

i) $(43.24)_{10} = (.....)_2$ ii) $(101110.11)_2 = (.....)_{10}$

iii) $(BCD.8)_{16} = (.....)_{10}$ iv) $(101110.11)_8 = (.....)_2$

v) $(192.5)_{10} = (.....)_{16}$

OR

b) What is 9's and 10's complement ? Explain with suitable examples. **4+**
Perform following subtraction using 1's complement method : **6**

i) $(110111)_2 - (1110)_2$ ii) $(29)_{10} - (43)_{10}$

2. Either

a) What is BCD code ? Explain with example. Perform following conversion : **2+ 6+**

i) $(11011)_2 = (.....)_{BCD}$ ii) $(0110\ 1001)_{BCD} = (.....)_2$ **2**

State the advantages and disadvantages of BCD.

OR

b) What is Ex-OR and Ex-NOR gate ? Give symbol, Boolean equation, truth table and logic diagram of Ex-OR and Ex-NOR gates. Explain use of Ex-OR gate as a controlled inverter. **2+ 6+ 2**

3. Either

a) Define : **5+ 5**

i) Fan in and Fan out ii) Noise immunity

iii) Propagation delay iv) Power dissipation.

Explain construction and working of 2 input TTL NAND gate.

OR

b) Explain the construction and working of 2-input CMOS NOR gate. **6+**
State the advantages of CMOS over TTL logic families. **4**

4. **Either**

a) Draw block diagram of computer and explain function of each block. **6+**
Give the classification of computer on the basis of speed and storage capacity. **4**

OR

b) Explain the function of following devices : **10**

i) Hard disk ii) Pen drive iii) Optical disk

iv) Mouse v) Printer

5. a) What is sign magnitude number ? Explain with examples. **2½**

b) Construct basic gates using NAND only. **2½**

c) Explain the concept of tristate logic. **2½**

d) State any five applications of computer. **2½**

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