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

P. Pages : 2

GUG/S/17/5573

Time : Three Hours

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Max. Marks : 50

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

1. **Either**

a) Explain the conversion of decimal number into binary equivalent by double dabble method with suitable example.   **5+5**
Perform the following conversion (Show calculation)

i) $(100110 \cdot 110)_2 = (-----)_{10}$

ii) $(32.5)_{16} = (-----)_{10}$

OR

b) Explain the 9's and 10's complement method with suitable example.   **5+5**
Sub struct following number using 9's and 10's complement method.

i) $745 - 436$

ii) $2928 - 416$

2. **Either**

a) What is Gray Code? Explain its advantages and applications.   **5+5**
Explain the conversion of binary to gray code and vice versa with suitable example of each.

OR

b) Explain the basic logic gates and universal gates.   **5+5**
Explain why NAND and NOR gates are called universal gates.

3. **Either**

a) Explain the construction and working of 2-input TTL NAND gate. write down the truth table for the circuit.   **5+5**
Explain Fan-in, Fan-out and noise immunity of a logic families with suitable example.

OR

b) Explain the construction and working of CMOS NAND gate.   **4+4+2**
Compare TTL and CMOS logic family characteristics.
Which one is mostly preferred and why?

4.   **Either**

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

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OR

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b)   What is input and output device of computer?   **4+6**
     Discuss :

    i)   Scanner.

    ii)   Printer.

    iii) Hard disk.

5.   a)   Explain octal number system.   **2½x4**

    b)   Explain the parity codes.

    c)   Explain the concept of tristate logic.

    d)   Explain the generations of computer.

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