



GUG/W/14-1224

F.Y.B.Sc. (Part - I) Sem. - II 2SELE-T1

**Electronics - I (Digital Electronics and
Computer Fundamentals)
Paper - I**

P. Pages : 3

Time : Three Hours

Max. Marks : 50

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

1. Either

a) Convert $(25.625)_{10}$ into its binary equivalent. Perform the following subtraction using 2's complement. **2+5+3**

i) $(49)_{10} - (35)_{10}$

ii) $(11000)_2 - (100)_2$

Define a) bit

b) Nibble

c) Byte

OR

b) Explain octal to Binary conversion with suitable example. Perform the following binary subtraction. **5+5**

i) $(1000)_2 - (11)_2$

ii) $(101011)_2 - (10010)_2$

Explain decimal subtraction by 9's and 10's complement method.

a) $(68)_{10} - (47)_{10}$

b) $(625)_{10} - (87)_{10}$

2. Either

- a) Write a note on parity code and gray code. Explain the construction of various basic gates using NOR gate only. **5+5**

OR

- b) State and prove Demorgan's theorem. **6+2+2**
Reduce the following Boolean Expression using laws and theorems of Boolean algebra. $Y = (A + B)(A + \bar{B})(\bar{A} + B)$
Draw the logic diagram for $Y = A\bar{B}CD + ABCD$

3. Either

- a) Define **3+5+2**
a) Fan in and Fan out
b) Propagation delay
c) Noise immunity
Draw the circuit diagram of TTL NOT gate and explain its working.
State the specification of TTL logic family.

OR

- b) Give the classification of logic families. **3+3+4**
State the advantages of CMOS logic families with respect to TTL logic families.
Explain with circuit diagram the working of CMOS – NAND gate

4. Either

- a) Draw the block diagram of computer and explain the function of each blocks. Enlist the six applications of computers. **7+3**

OR

- b) State and Explain various generations of computer. **7+3**
Explain non impact printer in brief.

5. a) Explain hexadecimal to octal conversion with example. **2½**
- b) State advantages and disadvantages of 8421 BCD code. **2½**
- c) Explain the construction and working of 2-input TTL NOR gate. **2½**
- d) Write a short note on keyboard. **2½**
