52+0=53
47+2=49

SHAHEED BHAGAT SINGH STATE TECHNICAL CAMPUS, FEROZEPUR

ROLL No: | | | | | | | | | | | | | **Total number of pages:[1]**

B.Tech. || EE || 4th Sem

Digital Electronics (RG/RP)

Subject Code: BTEE-405A/BTEC-404

Paper ID: M/18

(2011 batch onwards)

Time allowed: 3 Hrs **Max Marks: 60**

Important Instructions:

- **All questions are compulsory**

PART A (10x 2marks)

Q. 1. Short-Answer Questions:

(a) Compare TTL with ECL.
(b) What is the difference between MUX and DEMUX?
(c) Compare synchronous counters with asynchronous counters.
(d) Differentiate encoder and decoder.
(e) Differentiate half and full adder.
(f) What is Ring Counter?
(g) Convert binary to octal code (110011).
(h) What is Shift Register?
(i) What do you mean by Resolution of ADC?
(j) What are different minimization techniques?

PART B (5×8marks)

Q. 2. Solve the following function using K-map. CO1
$F(A, B, C, D) = \sum m(0, 1, 2, 5, 6, 8, 10, 12, 13, 14)$

OR

What are Universal Gates? Prove that NAND and NOR are Universal gates. CO1

Q. 3. Can we use Adder as Subtractor? If yes, explain how? CO2

OR

Implement Full adder using 8:1 MUX. CO2

Q. 4. What is Flip-flop? Design a clocked T Flip-flop. CO3

OR

Explain in detail the working of JK flip-flop. Convert T flip-flop to D flip-flop. CO3

Q. 5. Explain the working of Parallel Comparator type A/D converter. CO4

OR

With help of neat diagram explain working of R-2R ladder type DAC. CO4

Q. 6. Implement BCD to Seven segment Display Driver/Decoder. CO2

OR

Design a BCD to Excess-3 code converter. CO2