

2007-PUNJAB UNIVERSITY
B. TECH DEGREE EXAMINATION
DIGITAL ELECTRONICS
(ELECTRONICS AND COMMUNICATION ENGINEERING)

TIME-3HOUR
MARKS-100

PART A [10*2=20 MARKS]

- 1.(a) Application of ASCII ,Excess-3 and grey codes.
- (b) Differentiate between combinational and sequential circuits.
- (c) the advantages of edge triggered flip-flops
- (d) How subtraction of 4-bit no. is performed by addition?
- (e) If two inputs are to be used for a 4 input NAND gate, discuss the options available with the unused inputs.
- (f) A/D accuracy and resolution
- (g) Fan in, Fan out, propagation delay terms related to logic gates.
- (h) Special features of content addressable memories.
- (i) Advantages and disadvantages of synchronous over asynchronous counters.
- (j) Conversion of 100.55(10) into binary, octal codes.

PART B [10*8=80 MARKS]

2. Draw the circuit of a 3 to 8 decoder and explain its operation. How this can be used as a DEMUX.
3. Find the complement of the boolean function and reduce it to a minimum number of literals :
 $B'D+A'BC'+ACD+A'BC$.
4. Draw the circuit of a negative edge triggered J-K flip flop with d.c. pre-set and d.c. clear options using S-R flip flops and explain its truth table.
5. Draw and discuss the circuit of a dual slope A/D convertor.
6. Draw the circuit of a 3- input TTL totem pole NAND gate and explain its operation.
- 7.(a) Mention the various A/D converters. Discuss the comparison of advantages and disadvantages of each of these.
- (b) Simple using Q-M method:
 $X(A,B,C,D)= \Sigma(0,1,2,8,10,11,14,15)$.
- 8.(a) Draw the circuit of Ecl gate and explain its operation.
- (b) Discuss the comparison of the important characteristics of the various IC logic families.
- 9.(a) Draw the circuit of a BJT RAM cell and explain its operation