BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BE
BRANCH: EEE/CSE/ECE

SEMESTER : III
SESSION : MO/16

SUBJECT: EC3201-DIGITAL ELECTRONICS

TIME: 03:00

FULL MARKS: 60

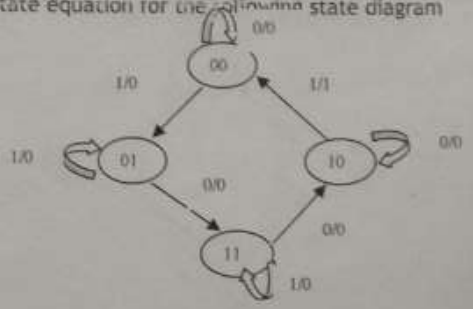
INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
4. Before attemptine the question paper, be sure that you have got the correct question paper.
5. Tables/Data hand book/Graph paper etc. to be supplied to the can lidates in the examination hall.
6. Nothing should be written on front or back of the question paper except tick marking.

Q.1(a) Using 10's complement ,subtract 72532-3250 [2]
(b) Simplify the Boolean function of F(A,B,C,D,E)=Σ(0,2,4,6,9,11,13,15,17,21,25,27,29,31) using k-map [4]
(c) Determine the prime-implicants of the function F(w,x,y,z)= Σ(1,4,6,7,8,9,10,11,15) [6]

Q.2(a) What are the universal gates? Why we are calling universal gates? [2]
(b) Construct 4 X 16 decoder with two 3 X 8 decoders. [4]
(c) Explain about BCD subtractor with suitable logic diagrams. [6]

Q.3(a) What is the difference between combinational and sequential circuits? [2]
(b) Explain about types of triggerings in Flip-flops? [4]
(c) Draw the logic diagram of J-K flip-flop. Find the characteristic equation using k-map? [6]

Q.4(a) What is meant by state equation? [2]
(b) Explain about state reduction and state assignment. [4]
(c) Find state table and state equation for the following state diagram [6]



Q.5(a) Implementation of a 2: 1 Multiplexer Using CMOS Transmission Gates. [2]
(b) Implement X-OR gate using CMOS logic. [4]
(c) Explain the working operation of NAND gate using TTL logic. [6]

Q.6(a) Why bistable multivibrator only used for flip-flops. [2]
(b) Explain working principle of monostable multivibrator and why it is called as one shot multivibrator. [4]
(c) Explain the operation of Schmitt trigger using op amp. [6]

Q.7(a) What is the major difference between PAL and PLA? [2]
(b) Explain about static ROM with circuit diagrams. [4]
(c) Implement BCD to grey converter using PAL logic. [6]

*****25/11/16******E