Q. P. Code: 26352

(3 Hours) **[Total Marks: 80]**

N.B.: (1) Question No. **1** is **compulsory.**
(2) Solve any **three** questions out of remaining **five.**
(3) Figures to **right** indicate **full** marks.
(4) Assume suitable **data** where **necessary.**

Q1. Solve any four 20
a) State ideal and Practical Characteristics of an Op-amp
b) Explain Multiplexer and Demultiplexer.
c) Convert following decimal number to Binary ,Octal, Hexadecimal and Gray code
i) $(128)_{10}$ ii)$(73)_{10}$
d) Explain working of LCD.
e) Covert D flip flop to S-R flip flop.

Q2. a) a) Implement following using only one 8:1 Multiplexer and few gates.
$F(A,B,C,D)= \sum m(0,1,3,4,5,8,9,10,12,15)$ 10
b) Explain Fixed Biasing Circuit with its stability factor. 10

Q3. a) Draw and Explain Instrumentation Amplifier using Op-amp. 10
b) Draw circuit diagram and explain the operation of Monostable Multivibrator using IC555. 10

Q4. a) Minimize the following four variable logic function using K-map and design by using basic gates 10
$f(A,B,C,D)=\sum m (0,1,2,3,4,7,8,9,11,15)$
b) What are the different methods used to improve CMRR in Differential Amplifier. Explain one in brief. 10

Q5. a) Design a Mod 12 asynchronous counter using J-K-flip flop 10
b) Design 4-bit binary to gray code conversion 10

Q6 Write short notes on any four 20
a) Explain the working of a Non-inverting amplifier using Op-amp
b) Explain working of a transistor.
c) Write VHDL program for NAND gate.
d) Explain working of Current Mirror Circuit.
e) Explain block diagram of op-amp.

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