



End Term Examinations (December 2019)

School: School of Engineering

Program: B.Tech Mechatronics & Biomedical Engineering

Course: Analog and Digital Electronics

Course Code: ENG205

Semester: III

Max Marks: 40

Duration (mins): 90

PART - A

Q 1. Answer the following questions. (Any FIVE)
(Each question carries 2 marks)

[10]

- What is a multiplier ?
- Convert SR-Flipflop to D-flipflop.
- Draw the digital circuit for Binary to Gray Code Conversion.
- What is PSRR and CMRR ?
- What is an Unity Follower Amplifier ?
- State Barkhausen Stability criteria.
- $F = (\bar{X} + \bar{Y})(X + Y)$. Implement using NOR gate.

PART-B

Answer ALL questions.

(Each Question carries 5 marks)

[30]

Q 2. Mention the different types of negative feedback? Draw the circuit diagram of shunt series negative feedback and find out the expression for V_s and A_f .

or

Explain Integrator and Differentiator with diagram.

Q 3. Explain the operation of binary parallel adder with example.

or

Sight 5 differences between Combinational and Sequential circuit.

Q 4. What is the difference between SR-Flipflop and JK-Flipflop. Explain the working of JK-Flipflop with logic diagram and truth table.

or

What is the difference between MUX and DEMUX? Design 8X1 MUX using 4X1 MUX.

Q 5. Design 4-bit up counter with positive clock pulse. Show the outputs.

or

Design a Full Subtractor. Find the expression for Borrow and Difference.

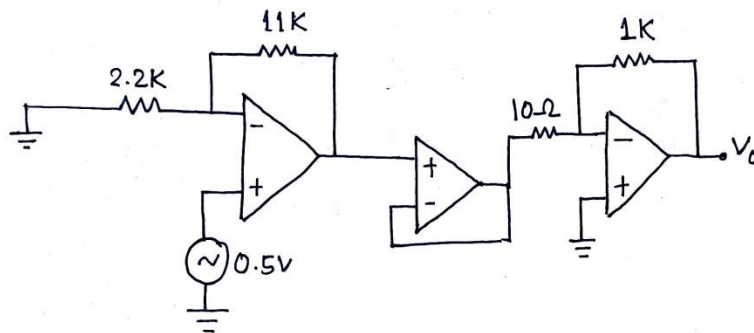
Q 6. $ab + \bar{a}c + \bar{a}\bar{b}c(ab + c) = 1$. Prove it using Boolean Theorem.

or

Using K-Map, simplify the following function and implement the reduced function using NAND gate.

$$F(A,B,C,D) = \sum m(13,8,9,2,6,14,0,1,4,5,12)$$

Q 7. Determine V_o for the following circuit.



or

