

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – PHYSICS

THIRD SEMESTER – APRIL 2023

16/17/18UPH3MC02 – ELECTRONICS - I

Date: 04-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

PART – A

(10 x 2 = 20 Marks)

Q. No. Answer ALL questions

- 1 State Thevenin's theorem.
- 2 What is meant by a constant current source?
- 3 Enumerate the methods of transistor biasing.
- 4 State the Barkhausen criterion for oscillations.
- 5 Define Common Mode Rejection Ratio.
- 6 Write the difference between FET and MOSFET.
- 7 Draw the logic circuit for clocked RS flip-flop and give its truth table.
- 8 Draw the logic diagram of a D - flip-flop and write its truth table.
- 9 List the various scales of integration circuit.
- 10 What is meant by lithographic technique?

PART – B

(4 x 7.5 = 30 Marks)

Answer any FOUR questions

- 11 Derive the condition for transfer of maximum power from a source to a load.
- 12 With a neat circuit diagram, explain the functioning of a Wein bridge oscillator.
- 13 Describe the operation of a JK flip flop with suitable circuit diagram.
- 14 With a neat circuit diagram and truth table, describe the function of a full adder.
- 15 Compare the bipolar and MOS technologies in VLSI design.
- 16 Describe the construction and working of FET.

PART – C

(4 x 12.5 = 50 Marks)

Answer any FOUR questions

- 17 State and prove Norton's theorem.
 - 18 Explain the working of a two stage RC coupled amplifier in common emitter configuration.
 - 19 Explain the operation of an OP-AMP as an inverting and as a non-inverting amplifier.
 - 20 Draw the logic circuit and explain the working of a 4 bit up/down counter with relevant truth table.
 - 21 Describe how a diode, transistor and resistor can be fabricated on a monolithic IC.
 - 22 Simplify using K map $Y=F(A,B,C,D)=\Sigma(0,1,3,5,7,9,11,12,13,14,15)$ and draw a logic circuit for the simplified expression
-

