

# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



**B.Sc. DEGREE EXAMINATION – PHYSICS**

**FOURTH SEMESTER – APRIL 2022**

**UPH 4501 – ELECTRONICS - I**

Date: 16-06-2022

Dept. No.

Max. : 100 Marks

Time: 09:00 AM - 12:00 NOON

## PART – A

Answer ALL the Questions

(10x2=20 Marks)

1. State Thevenin's Theorem.
2. What is a constant voltage source?
3. Write the different methods of transistor biasing.
4. Draw the circuit diagram of a Bistable multivibrator.
5. What is virtual ground?
6. Define CMRR and write its unit.
7. Write any two applications of shift registers.
8. What is a ripple counter? Explain how it works.
9. Write a note on scale of integration
10. Distinguish between linear and non-linear ICs.

## PART – B

Answer Any Four Questions

(4x7.5=30 Marks)

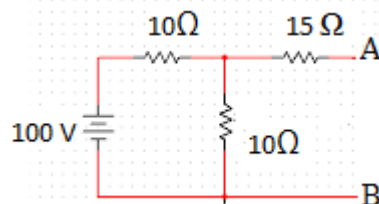
11. State the maximum power theorem and derive the condition for transfer of maximum power from source to a load.
12. With a neat circuit diagram explain the working of a two stage RC coupled amplifier.
13. Explain the operation of OP-AMP as an inverting amplifier.
14. Describe the function of a 4 bit down counter with neat diagram.
15. Explain how monolithic I.Cs are fabricated.
16. Describe the construction and working of FET.  $\Omega$

## PART – C

Answer Any Four Questions

(4x12.5=50 Marks)

17. a) State and explain Norton's theorem. List out the steps involved in Nortonising a given circuit.  
b) Using Norton's theorem find the constant current equivalent of the circuit given below.



18. With necessary circuit explain the construction and working of an Astable Multivibrator.
19. Describe the operation of OP-AMP as summing and difference amplifier.
20. With neat circuit diagrams describe the operation of 4 bit shift left and shift right shift registers
21. Briefly explain the fabrication of a diode, transistor, resistor and capacitor on a monolithic IC.
22. Describe the construction and working of Wien Bridge Oscillator with neat circuit diagram. Mention its advantages and disadvantages.

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