LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc.DEGREE EXAMINATION – PHYSICS

FOURTH SEMESTER – APRIL 2019

PH 4506– ELECTRONICS - I

Date: 11-04-2019
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks


PART - A (10 × 2 = 20 MARKS)
ANSWER ALL QUESTIONS.

1. List the sources of electrical power.

2. State superposition theorem.

3. Differentiate between amplifier and oscillator.

4. What do you understand by class A power amplifier?

5. Give the reasons for virtual ground in an inverting terminal of an op amp.

6. Why FET is called unipolar device?

7. Simply the following expression using Boolean algebra $(\bar{A} + B)C + ABC$.

8. What is the basic difference between ROM and RAM?

9. Write the amount of circuit or component density in integration.

10. What do you mean by LIC? Where are they used frequently?

PART - B (4 × 7.5 = 30 MARKS)
ANSWER ANY FOUR QUESTIONS.

11. State Thevenin's theorem. Apply Thevenin's theorem to find the current in the branch of 12 resistor
of the circuit shown.
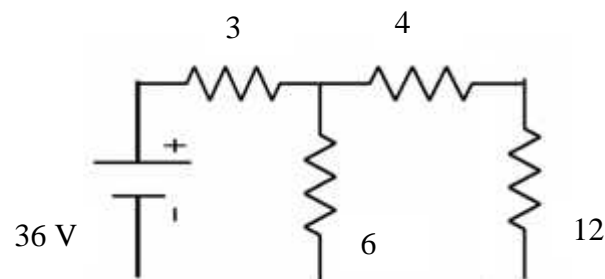
12. With neat circuit diagram explain the working of an RC coupled amplifier.

13. Give the constructional details of SCR and explain the mechanism of turning ON and OFF the SCR.

14. What is a decoder? Explain with logic circuit how BCD digits can be decoded to 7-segment display.

15. Define a register. Explain the operation of a 4-bit shift register with necessary circuit diagram.

16.   Explain the fabrication of IC components with neat diagram.

PART - C (4 × 12.5 = 50 MARKS)
ANSWER ANY **FOUR** QUESTIONS

17.   State and explain maximum power transfer theorem.What is the efficiency under the condition of

maximum power?

18.   Derive expressions for current gain, voltage gain, input impedance and output impedance by drawing

the hybrid parameter equivalent circuit of a CE amplifier.

19.   Derive the condition for sustained oscillations and frequency of oscillations in a Colpitt's oscillator

with neat circuit diagram.

20.   Draw the circuit and explain (i) differential amplifier and   (ii) buffer amplifier using op amp.

21.   What is S-R flip flop? Give the logic symbol, with the help of truth table and circuit realization using

NOR and NAND gates explain the operation of S-R flip flop.

22.   Discuss the steps involved in fabricating monolithic IC with help of diagrams.

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