

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



B.Sc. DEGREE EXAMINATION – PHYSICS

THIRD SEMESTER – APRIL 2016

PH 3504/PH 3502/PH 5501 – ELECTRONICS - I

Date: 28-04-2016
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

Answer ALL questions:

(10 x 2 = 20 Marks)

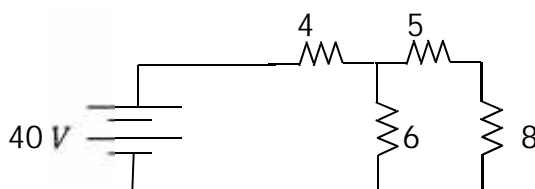
1. What is a constant voltage source?
2. State the maximum power transfer theorem.
3. Write the expressions for base and collector current in single stage transistor amplifier.
4. What are the feedback requirements for an oscillator?
5. Define Common mode rejection ratio.
6. What is a UJT? Draw its equivalent circuit.
7. What is a multiplexer?
8. Give the logic diagram and truth table of RS flip flop.
9. Explain the mod-2 counter.
10. Mention the differences between ROM and RAM.

PART – B

Answer any FOUR questions:

(4 x 7.5 =30 Marks)

11. State Norton's theorem and using it find the current through 8 in the circuit below.



12. Describe the working of phase shift oscillator with a neat circuit diagram.
13. What is a SCR? Give its symbol and explain its V-I characteristics.
14. Discuss the working of JK flip flop with logic diagram.
15. Explain the function of 4 bit binary ripple counter with logic diagram and function table.
16. Discuss the operation of transistor monostable multivibrator with a neat diagram.

PART – C

Answer any FOUR questions:

(4 x 12.5 =50 Marks)

17. Obtain the expressions for current gain, voltage gain and input impedance of a transistor amplifier in common emitter configuration with necessary h parameter equivalent circuit.
18. With neat circuit diagram, explain the working of RC coupled transistor amplifier and discuss its frequency response curve.

19. (a) Explain the working of Op-Amp as summing amplifier. (7.5)
(b) What are FET parameters? Explain. (5.0)
20. Discuss the working of (a) parallel binary adder and (b) BCD code to seven segment decoder.
21. Explain the function of (a) shift left and (b) shift right shift registers with neat circuit diagrams.
22. (a) Obtain the expression for voltage gain of inverting amplifier. (6.0)
(b) Simplify using K-map, $Y = F(A, B, C, D) = (0, 1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 14)$. (6.5)

\$\$\$\$\$\$