LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

THIRD SEMESTER – NOVEMBER 2007

AC 7

PH 3502 - ELECTRONICS - I

Date : 27/10/2007 Dept. No. Max. : 100 Marks

Time : 9:00 - 12:00

PART – A (10 X 2 = 20 marks)

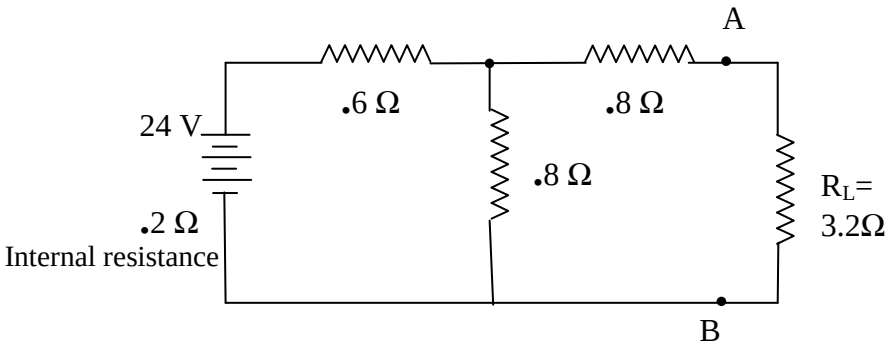
Answer all questions. All questions carry equal marks.

1. A voltage source generating 100V D.C has an internal resistance of 100Ω. Find the load current if the load is 1000Ω.
2. Give the units of h parameters.
3. What is the condition for class A amplifier?
4. What is a.c. load line?
5. What is CMRR?
6. Draw the two transistor equivalence *f* an SCR.
7. Draw the logic symbol and truth table of D. flip flop.
8. Give the block diagram of demultiplexer.
9. Write a brief note on RAM.
10. What is a decade counter?

PART – B (4 X 7.5 = 30 marks)

Answer any FOUR questions

11. Draw Thevenin's and Norton's equivalent circuits for the following network of resistances. Calculate the current through the load in each case.



12. Explain the principle of phase shift network and describe the working of phase shift oscillator.
13. Discuss the application of OPAMP as
    a) Summer b) difference amplifier
14. Describe the construction and working of a parallel binary adder.
15. With a block diagram explain mod – 16 counter.

PART – C (4 X 12.5 = 50 marks)

Answer any FOUR questions

16. a) State and prove superposition theorem 5
    b) Obtain the h-parameter for a linear circuit and derive expressions for current gain and input impedance for a transistor in CE mode. 7.5
17. With necessary circuit explain the working of a monostable multivibrator.
18. With a neat circuit diagram obtain the drain and transfer characteristics of FET and its parameters.
19. a) Simplify the following Boolean expression using K-Map 7.5
    f (A,B,C,D) = Σ (2,3,4,5,10,11,12,13)
    b) Explain the working of clocked RS flip flop 5
20. Explain the working of shift right and shift left shift registers with a diagram

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