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B.E. / B.Tech (Full Time) DEGREE END SEMESTER EXAMINATION, APRIL/MAY 2014
COMPUTER SCIENCE ENGINEERING BRANCH
THIRD SEMESTER
EC 294 / EC9213 – ELECTRONIC DEVICES & CIRCUITS
(Regulations 2004 / 2008)

Time: 3 Hours

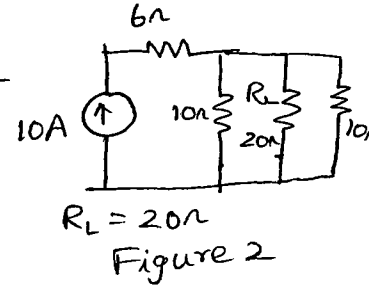
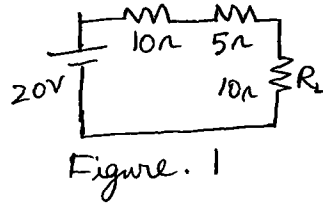
Max.marks: 100

Answer ALL questions

PART-A

(10X2=20 marks)

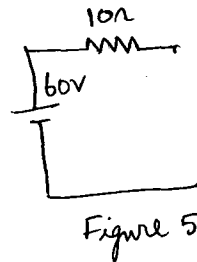
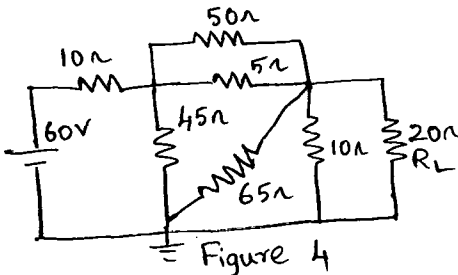
1. Find voltage across resistor R_L in figure 1.
2. Find the current through resistor R_L in figure 2.
3. State superposition theorem.
4. Define power factor.
5. List few applications of diode.
6. What are the operating modes of JFET?
7. What are the features of capacitor filter?
8. Draw the equivalent circuit of CS MOSFET amplifier.
9. What are the ideal characteristics of op-amp?
10. Find the cut-off frequency of low pass filter using op-amp.



PART-B

(5X16=80 marks)

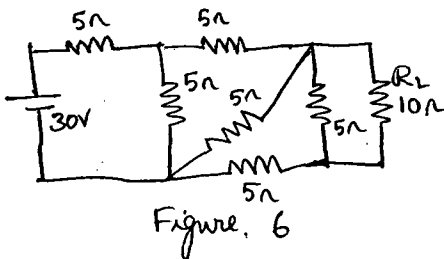
11. i. State Kirchoff's current and voltage law. (4)



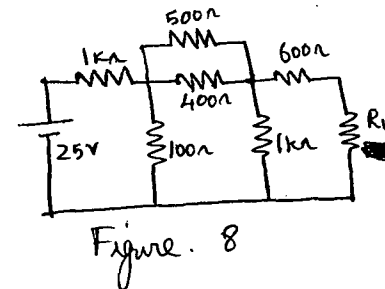
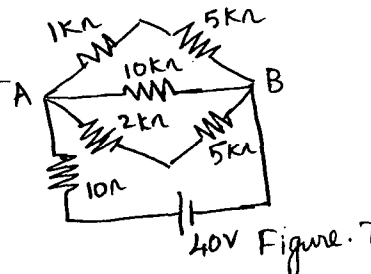
- ii. Find the voltage and current through R_L in figure 4. (12)

12. a. i. Convert the voltage source given in figure 5 to current source. (4)

- ii. Find the Thevenin equivalent circuit for the circuit given in figure 6. (12)



(or)



- b. i. Find the resistance across A and B in the circuit given in figure 7 using delta to Y-conversion. (8)

- ii. For the circuit given in figure 8, find the value of R_L for maximum power transfer. (8)

13. a. i. Explain the operation of zener diode voltage regulator. (8)
ii. Draw and explain h parameter model of BJT. (8)
(or)

b. Explain the drain current flow in depletion mode and enhancement mode MOSFET for various values of V_{gs}

14. a. Derive the ripple factor, TUF, PIV and efficiency of bridge rectifier with neat circuit diagram and input/output waveforms.

(or)

b. i. With equivalent circuit diagram, derive gain, input and output impedance of CE amplifier.

15. a. Explain the following op-amp applications.

i. Inverting and non-inverting amplifier (8)

ii. Subtractor (4)

iii. Integrator (4)

(or)

b. With neat diagram, explain the operation of digital to analog converter.