

Uva Wellassa University, Sri Lanka  
End Semester Examination – June 2009  
SCT 161-1 Basic Electricity and Electronics  
Time: One (01) hour

Total 04 Questions  
Answer three (03) questions only

PART - A

Q1)

- I. State the Thevenin's Theorem, explain the method to find  $V_{th}$  and  $R_{th}$ . (8)
- II. Using Thevenin's Theorem find the current through  $10\Omega$  resistor in the network shown in Figure Q1. (12)

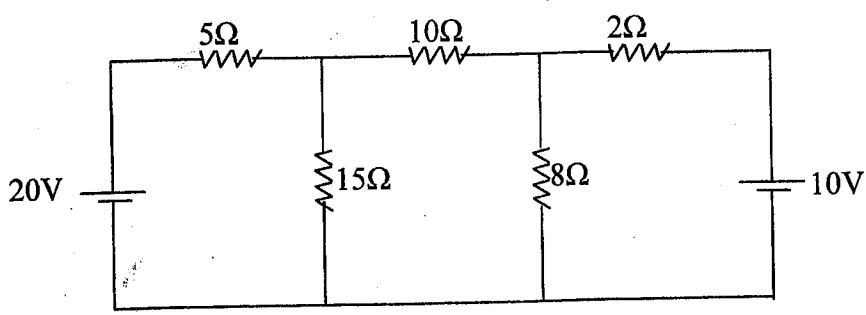


Figure Q1

Q2)

- I. Explain Generator principle with describing three essential components (6)
- II. Compare series generator with shunt generator (6)
- III. A 30 kW, 300V d.c. shunt generator has armature and field resistance of  $0.05\Omega$  and  $100\Omega$  respectively. Calculate total power developed by the armature when it delivers full load out put. (8)

Q3)

- I. What is back emf of a DC Motor. What is the advantage of back emf. (8)
- II. A 230V DC shunt motor takes 5A at no load and runs at 1000 r.p.m. Calculate the speed when loaded and taking a current of 30A. The armature and field resistances are  $0.2\Omega$  and  $230\Omega$  respectively. (12)

Q4.

1. Determine the value of resistor given below.

(4)

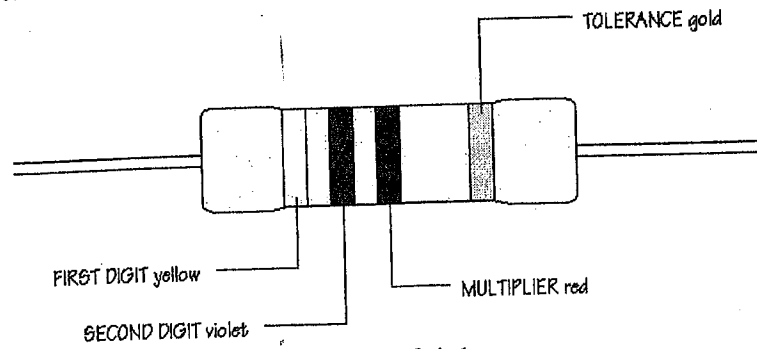


Figure Q4-1

2. Draw the waveform, through the  $R_L$  resistor in the Figure Q4-2.

(6)

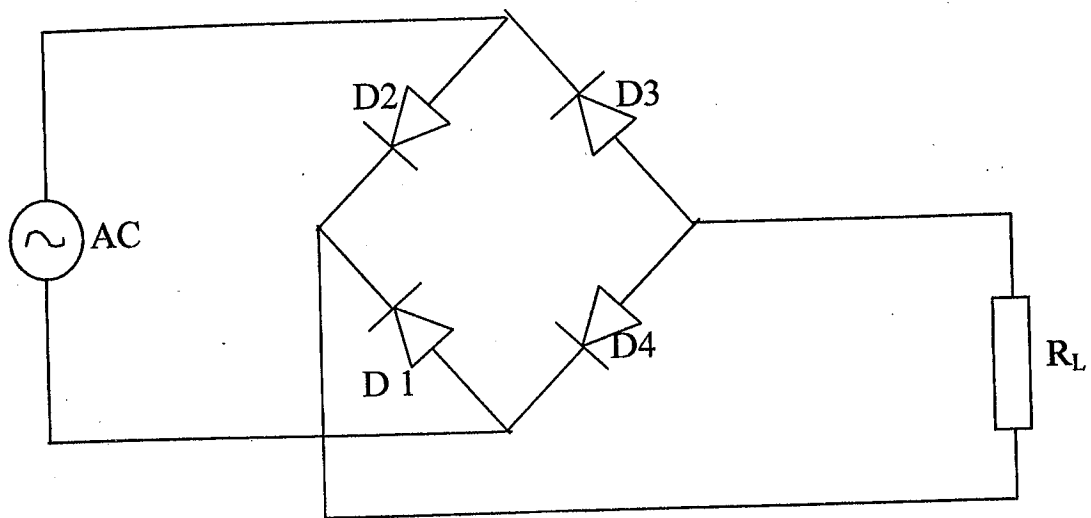


Figure Q4-2

3. Calculate the current through  $5\Omega$  in the Figure Q4-3 using Kirchoff's Laws. Clearly illustrate the steps.

(1)

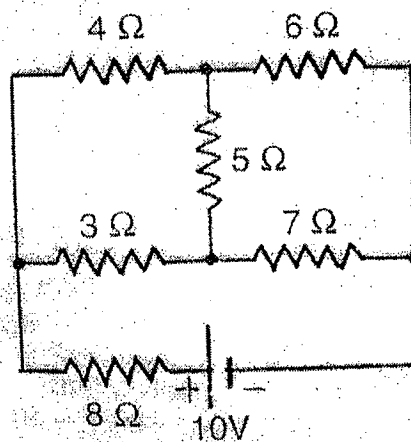


Figure Q4-3