B.Sc. (With Credits)-Regular-Semester 2012 Sem I

E-02 Electronics -II
(Transducers and Network Theorems Paper - II)

P. Pages : 5

Time : Three Hours Max. Marks : 50

Notes :
1. All questions are compulsory.
2. All questions carry equal marks.
3. Draw neat and labelled diagram wherever necessary.
4. Use of calculators / log tables is allowed.

1. Either :

a) Explain the concept of transducer and state its need in any instrumentation system. **4+6**
Explain the construction and working of LVDT with diagram.

OR

b) What is piezoelectric effect ? Explain the construction and working of piezoelectric transducer. State its advantages and disadvantages. Name any two piezoelectric material. **5+5**

2. Either :

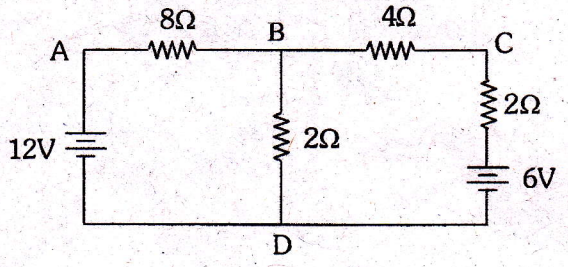
a) Explain the working principle of LASER. Describe the construction and working of LASER diode. **3+7**

OR

b) What are optoelectronic devices ? Give its classification with one example each. Explain the construction and working of LDR. State its uses. **4+4+2**

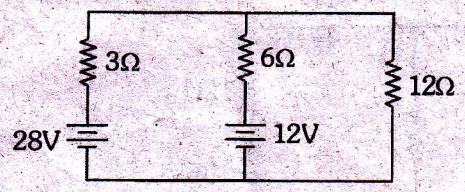
3. Either :

a) State Kirchoff's voltage law and Kirchoff's current law. With the help of Kirchoff's laws calculate the magnitude and direction of current flowing through the branch BD of circuit as shown below: **6+4**



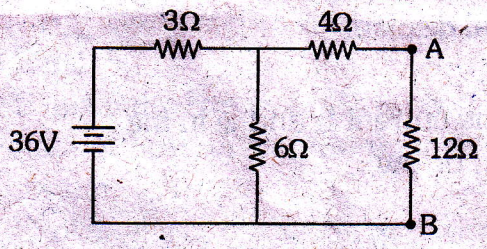
OR

b) State and explain superposition theorem. Calculate current through 12Ω resistor in the given circuit. With the help of superposition theorem. **6+4**



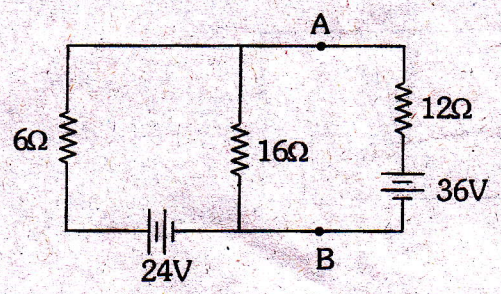
4. Either :

a) State and prove Thevinin's theorem. Using Thevinin's theorem. Find current through 12Ω resistor of the circuit shown in figure. **6+4**



OR

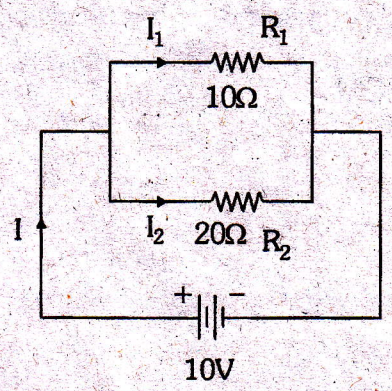
b) State and explain Milliman's theorem. Using Milliman's theorem calculate voltage V_{AB} across A and B in the network given below. **6+4**



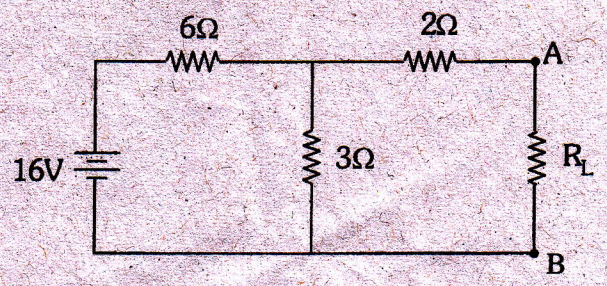
5. a) Explain the construction and working of Loudspeaker. **2½**

b) Explain the working of field effect type liquid crystal display. **2½**

c) Calculate the current I_1 and I_2 in the circuit given below : **2½**



d) According to maximum power transfer theorem what should be the value of load resistance R_L to abstract maximum power from 16V battery. **2½**



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