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

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

P. Pages : 2 **GUG/W/16/3308**

Time : Three Hours * 4 6 0 8 * Max. Marks : 50

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

1. Either

a) Explain construction and working of microphone. Explain the working of loudspeaker with suitable diagram. **10**

OR

b) What is piezoelectric effect? Explain construction and working piezoelectric transducer. Explain the working of unbonded type strain gauge. **10**

2. Either

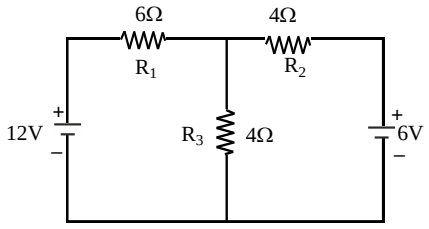
a) What is solar cell? Explain the construction and working of solar cell with suitable diagram. Draw its V-I characteristics and explain. State any four uses of solar cell. **10**

OR

b) Explain the construction and working of LED. State its any four uses. State the materials used in construction of LED. Explain the working of photovoltaic cell. **10**

3. Either

a) State and explain superposition theorem. Using superposition theorem, calculate current in resistor R_3 of the network given below:- **10**

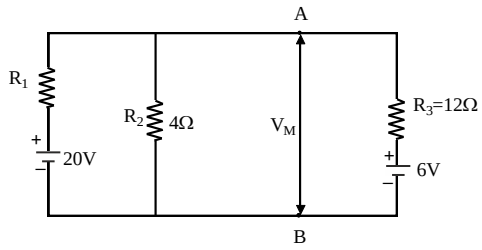


OR

b) Explain ideal and practical voltage source with suitable diagram. State and prove Kirchhoff's current law. **10**

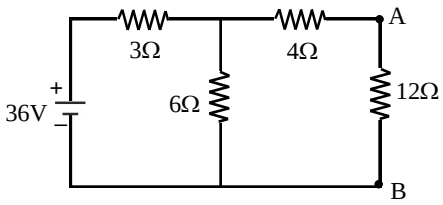
4. Either

a) State and prove Milliman's theorem. Using Milliman's theorem calculate the voltage 'V_m' across point A and B in circuit given below:- **10**



OR

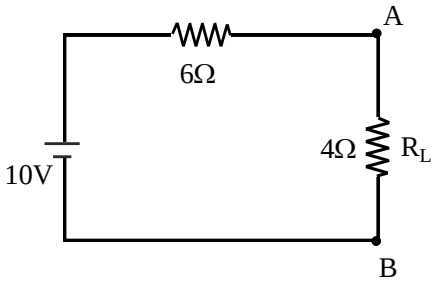
b) State and prove Norton's theorem. Using Norton's theorem find current flowing through $12\,\Omega$ resistor in the following circuit. **10**



5. a) What is strain gauge? Define gauge factor 'State the types of strain gauge'. **2½**

b) State any five uses of LDR. **2½**

c) Transform following voltage source into current source. **2½**



d) State and explain Thevenin's theorem. **2½**

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