



GUG/W/15/3308

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

E-02 Electronics
(Transducers and Network Theorems)

Paper - II

P. Pages : 4

Time : Three Hours

Max. Marks : 50

- Notes :
1. all questions are compulsory and carry equal marks.
 2. Draw neat and well labelled diagram wherever necessary.
 3. Use of log table / calculator is allowed.

1. Either :

- a) What is transducer? State at least four **2+2**
general requirements of a transducer. **+6**
Explain construction and working of a
loudspeaker.

OR

- b) What is displacement transducer? Explain **2+6**
different types of strain gauges. What is **+2**
significance of gauge factor?

2. Either :

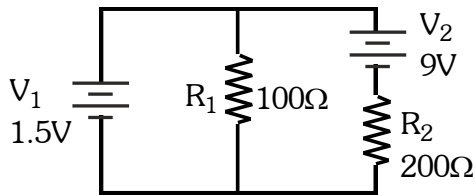
- a) What are the opto - electronic devices? **2+6**
Explain the construction and working of photoconductive cell. State uses of photoconductive cells. **+2**

OR

- b) Compare LED and LCD. Explain construction and working of LCD. **3+7**

3. Either :

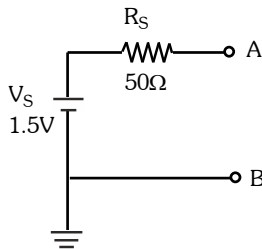
- a) Explain Kirchhoff's voltage and current laws. Using Kirchhoff's laws find the current through R_1 and R_2 in the following circuit. **3+3**
+4



OR

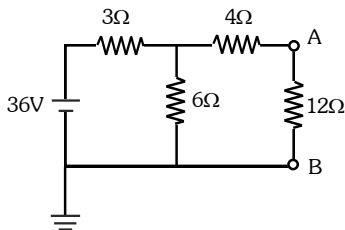
- b) How are ideal current and ideal voltage sources differ from practical current and practical voltage sources ? Explain with their characteristics. **8+2**

Convert the following voltage source into equivalent current source.



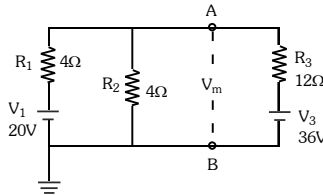
4. Either :

- a) State and prove Thevenin's theorem. **6+4**
Calculate the current through 12Ω resistor using Thevenin's theorem.

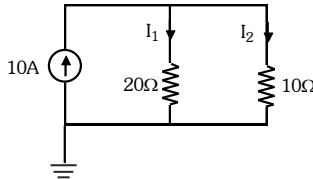


OR

- b) State and prove Millman's theorem. Using **6+4** Millman's theorem, calculate voltage V_m across points A and B in the network given below.



5. a) Explain construction and working of piezo-electric transducer. **4**
- b) Explain the working of solar cell. **4**
- c) Find the current I_1 and I_2 in the following circuit. **4**



- d) Find R_L that extracts maximum power from the following given network using maximum power transfer theorem. **4**

