

F.Y.B.Sc. (With Credits)-Regular-Semester 2012 Sem I
E-02 - Electronics Paper-II (Transducers and Network Theorems)

P. Pages : 2

Time : Three Hours



GUG/W/17/3308

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? 2+2+6
State at least four general requirements of a transducer
Explain construction and working of a loudspeaker.

OR

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

2. Either

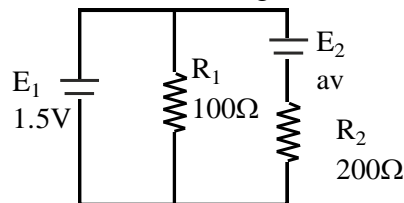
- a) What are opto-electronic devices? 2+6+2
Explain the construction and working of photo-conductive cell.
State its uses

OR

- b) Compare LED and LCD. 3+7
Explain construction and working of field effect type LCD.

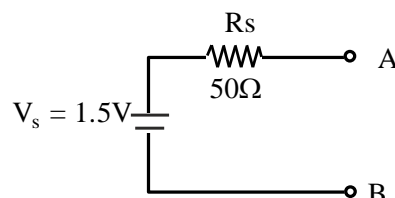
3. Either

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



OR

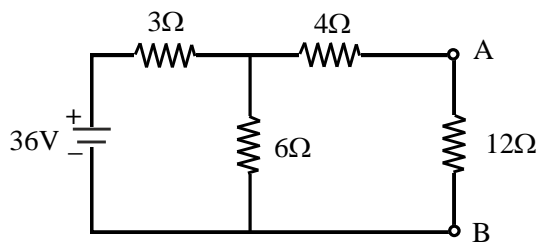
- b) What are ideal current and ideal voltage sources? 8+2
How does they differs from practical sources? Explain convert the following voltage source into equivalent current source.



4. Either

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

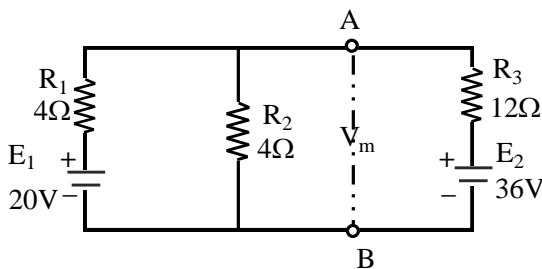
6+4



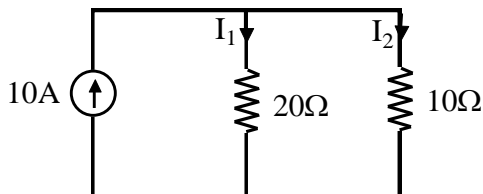
OR

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

6+4



5. a) Explain construction and working of piezoelectric transducer.
b) Explain the working of solar cell.
c) Find the current I_1 and I_2 in the following circuit.



- d) Find R_L that extracts maximum power from the given network.

2.5x4

