Bachelor of Science (F.Y.B.Sc.) First Semester

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

P. Pages : 2 **GUG/W/18/1207**

Time : Three Hours * 0 9 2 0 * Max. Marks : 50

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

1. Either

a) What is transducer? **1+6+3**
Explain active and passive transducer with suitable example. Give the classification of transducer on the basis of quantities to be converted.

OR

b) What is LVDT? **6+4**
Explain construction and working of LVDT with suitable diagram. Draw its characteristics and explain.

2. Either

a) What is solar cell? **5+5**
Explain the construction and working of solar cell.
Explain construction and working of LDR.

OR

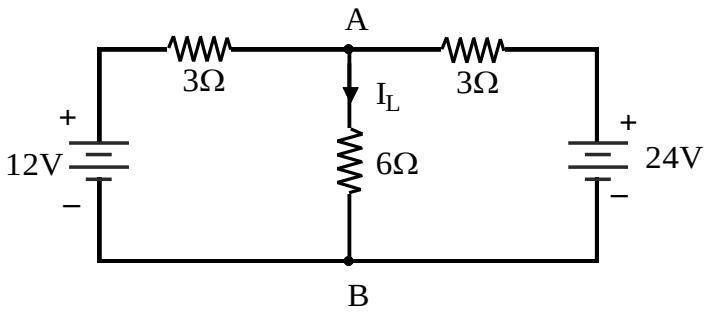
b) Explain the working of LASER diode with suitable diagram. **5+5**
Explain the construction and working of LED.

3. Either

a) Explain ideal and practical voltage source. Draw its characteristics. **7+3**
Define: Mesh, node and loops in networks.

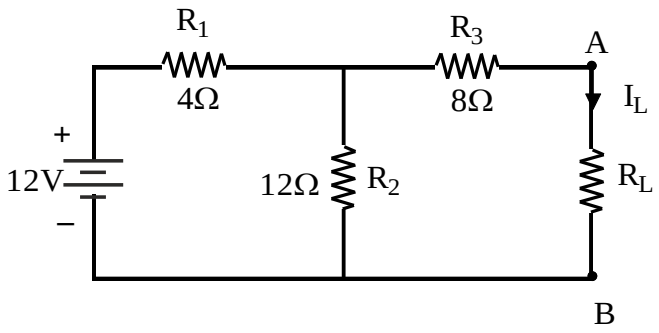
OR

b) State and explain the superposition theorem. **4+6**
Using superposition theorem, find the current through 6Ω resistor in the following circuit.



4. Either

a) State and prove Thevenin's theorem. Using Thevenin's theorem find the current through R_L in the following circuit. **6+4**



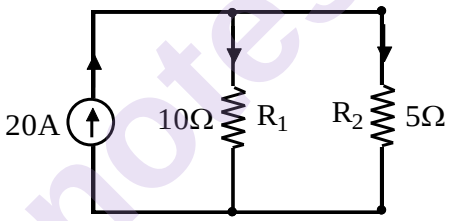
OR

b) State and prove Milliman's theorem. State and explain Maximum transfer theorem. **5+5**

5. a) Explain the construction of loudspeaker. **2½**

b) Explain the operation of photovoltaic cell. **2½**

c) Find the current through R_1 and R_2 using current divider method in the following circuit. **2½**



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

****