| BIEE-001 |

BTCSVI / BTECVI / BTELVI

Term-End Examination

⊓⊓⊑⊑⊇   **December, 2017**

BIEE-001 : BASICS OF ELECTRICAL ENGINEERING

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **seven** questions in all. All questions carry equal marks. Use of scientific calculator is allowed.*

1. State Norton's theorem and find the current through R_L using Norton's theorem in the circuit given in Figure 1.   *3+7*
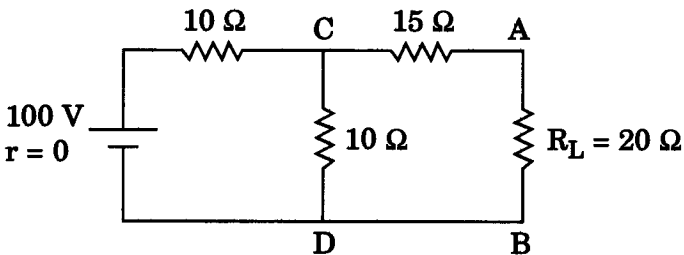

Figure 1

2. (a) Explain the conversion of circuits from star to delta connection with suitable example. *5*

   (b) Explain Kirchhoff's voltage law with the help of a suitable example. *5*

3. (a) What are Primary and Secondary cells ? Give their comparison. *5*

   (b) What are the different charging methods of a lead acid accumulator ? Briefly explain any one method. *5*

4. (a) Derive an expression for a force between two parallel current carrying conductors. *5*

   (b) Explain series and parallel magnetic circuits with the help of suitable sketches. *5*

5. (a) Explain the construction and working of nickel-cadmium cells. *5*

   (b) What are the different factors which are to be taken care of to increase battery life ? *5*

6. (a) Define and explain Faraday's law of electromagnetic induction. *5*

   (b) Make a comparison between Electrical and Magnetic circuits. *5*

7. A circuit has 1000 turns enclosing a magnetic circuit 20 cm^2 in section. With 4 amperes, the flux density is 1.0 Wb/M^2 and with 9 amperes it is 1.4 Wb/M^2. Find the mean value of inductance between these current limits and the induced emf if the current falls from 9 amperes to 4 amperes in 0.05 seconds. *10*

8. (a) Explain the effect of temperature on resistance and define temperature coefficient of resistance. *5*

   (b) Draw and explain Hysteresis Curve of a typical magnetic material. *5*

9. Write short notes on any *two* of the following : *2×5=10*

   (a) Silver Oxide Cells

   (b) Superposition Theorem

   (c) Lenz's Law