

**BTCSEVI / BTECEVI / BTELVI**

**Term-End Examination**

00215

**December, 2014**

**BIEE-001 : BASICS OF ELECTRICAL ENGINEERING**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt any **seven** questions of the following.

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1. Derive an equation for electric power. Also write the relationship between horsepower and watt. A motor is having a certain power. What do you understand by this ? 10
  
2. A 60 W lamp is connected to 240 V supply. How much current does it draw from supply ? How much electric energy is used by the lamp in 8 h ? 10
  
3. State and prove Norton's theorem with a suitable example. Also write the application of Norton's theorem. 10
  
4. (a) Give the basic idea about primary and secondary cells. 5  
(b) Explain silver oxide cells charging method used for lead acid accumulator. 5

5. Explain the meaning of magnetic flux and show how it is related to magnetic flux density. What do you mean by fringing? 10
6. Demonstrate through dimensional analysis why the hysteresis loop represents an energy loss per cycle. What can be done to diminish this loss? 10
7. How does the notion of reluctance arise in dealing with magnetic circuits? Why is this property useful? Name the physical parameters that influence this quantity. 10
8. (a) Magnetic circuits are basically non-linear. Explain what this statement means and why it is so. 5
- (b) Determine the flux density at a point 60 mm in air from a long straight conductor carrying a current of 500 A. 5
9. (a) Two long parallel conductors are situated 50 mm between centres in air each carrying a current of 200 A in the same direction. Calculate the force on each conductor. 5
- (b) Describe the premise on the basis of which it is possible to represent the three-dimensional field problems of magnetism by a magnetic circuit. 5
10. Write short notes on any *two* of the following : 5×2=10
- (a) Stacking factor
- (b) Superposition theorem
- (c) Principle of self and mutual induction
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