



TED (15/19) 3043  
(Revision – 2015/19)

**A21 – 07628**

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**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE, APRIL – 2021**

**ELECTRICAL TECHNOLOGY**

[Maximum Marks: 75]

[Time: 2.15 Hours]

**PART-A**

(Answer *any three* questions in one or two sentences. Each question carries 2 marks)

- I. 1. Define form factor.  
2. List the different losses in a transformer.  
3. List the various effect of armature reaction in DC generator.  
4. Which starter is most suitable for starting DC shunt motor.  
5. Define slip. (3 x 2 = 6)

**PART-B**

(Answer *any four* of the following questions. Each question carries 6 marks)

- II. 1. Define (a) Inductive reactance (b) Capacitive reactance (c) Power factor.  
2. A coil has resistance of 15 ohm and inductance of 0.5 H are connected in series with the supply of 230V, 50Hz. Calculate impedance and current.  
3. Derive the EMF equation of transformer.  
4. List the advantages and uses of auto - transformer.  
5. What are the different parts of a DC generator?  
6. Explain the significance of back EMF in DC motor.  
7. State the advantages of stationery armature in a alternator. (4 x 6 = 24)

**PART-C**

(Answer *any of the three units* from the following. Each full question carries 15 marks)

**UNIT – I**

- III. (a) Describe the effect through a RLC circuit. (8)  
(b) Explain the necessity of earthing in equipment and installation. (7)



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- IV. (a) Explain the neat sketch of pipe earthing. (8)
- (b) A resistance of 50 ohm connected in series with a capacitance of 43.7 micro fared are fed by 250V, 50Hz supply. Find 1) Impedance 2) Current 3) Power absorbed (7)

**UNIT – II**

- V. (a) Illustrate the elementary theory of an idle transformer. (8)
- (b) State and prove super position theorem. (7)

OR

- VI. (a) A 50 KVA single phase transformer having the number of primary and secondary windings are 834 and 58 respectively. The primary is connected to a 3300V, 50Hz supply find  
1) Transformation ratio 2) Secondary Induced EMF 3) Primary and secondary current. When the transformer is fully loaded. Neglect the losses. (8)
- (b) State and prove Thevenin's Theorem. (7)

**UNIT- III**

- VII. (a) Explain the principle of operating of a DC generator. (8)
- (b) Explain the necessity of starter in a DC motor starting. (7)

OR

- VIII. (a) Describe the characteristics of DC shunt motor. (8)
- (b) Calculate the EMF generated by a 4 pole wave wound armature having 45 slots with 18 conductors per slots. When driven at 1200 rpm. The flux per pole is 0.016wb. (7)

**UNIT - IV**

- IX. (a) Explain the working principle of alternator. (8)
- (b) Compare squirrel cage and slip-ring induction motor. (7)

OR

- X. (a) Explain the construction and working of a capacitor start induction run motor. (8)
- (b) Derive the EMF equation of a alternator. (7)

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