

## H32

### B. Tech. EXAMINATION, 2020

(Eighth Semester)

(B. Scheme) (Main & Re-appear)

(EE, EEE)

EE466B

#### UTILIZATION OF ELECTRIC POWER AND TRACTION

*Time : 3 Hours]*

*[Maximum Marks : 75*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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**Note :** Attempt *Five* questions in all, selecting at least *one* question from each Unit.

#### Unit I

1. (a) State and explain the laws of illumination. 8  
(b) Deduce the relation to find illumination at point on the surface due to light source suspended at a height  $h$  from the plain surface. 7
2. Describe with a circuit diagram the working of fluorescent lamp. Enumerate its advantages and disadvantages. Explain, how its disadvantages can be overcome ? 15

#### Unit II

3. (a) What are the different mode of transfer of heat ? Explain Direct and Indirect resistance heating. 8  
(b) Give the properties of arching electrodes in welding process. 7

4. Describe the construction and principle of induction furnaces. Describe how indirect heating is obtained in coreless induction furnace. **15**

### **Unit III**

5. Discuss the objectives of electroplating and describe different processes for electroplating. **15**
6. (a) Explain the process of charging and discharging in battery. **8**  
(b) State the laws of electrolyses. Explain the terms 'polarization' and 'throwing power'. **7**

### **Unit IV**

7. (a) What are the different traction motors of traction system and their use ? **8**  
(b) What is train movement ? Derive the expression of tractive effort exerted by driving wheel. **7**
8. Explain the following in detail :  
(a) Speed control of dc series motors **5**  
(b) Thyristor control of electric traction **5**  
(c) Multi-unit control. **5**