

**III B. Tech I Semester Supplementary Examinations, July – 2023****UTILIZATION OF ELECTRICAL ENERGY**

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

Answer any **FIVE** Questions **ONE** Question from **Each unit**

All Questions Carry Equal Marks

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**UNIT-I**

1. a) Illustrate the constructional features of MV lamp? Also list out the advantage of MV lamp by mention the applications. [7M]  
 b) Mention the different steps involved in lighting control. Elaborate about its principle in each step. [7M]

(OR)

2. a) By the help of necessary diagrams, summarize about the concept of polar cures used in illumination. [7M]  
 b) Interpret your answer regarding to the following source of light [7M]  
 i) temperature incandescence  
 ii) establishing arc between two electrodes.

**UNIT-II**

3. a) Is both a.c. and d.c. supply is used for drives? If your answer is 'yes/no' – write correct reasons. [7M]  
 b) Distinguish the total annual cost of a group drive with motor costing of Rs. 19000 with that of ten identical motors, each costing Rs. 6000. With group of drive annual consumption is 8000 kWh. With separate drives annual consumption is 55000 kWh. Electric energy cost is 20 paise per kWh. Depreciation, maintenance and other fixed charges amount to 10% in case of group drive and 15% in case of individual drive. [7M]

(OR)

4. a) Classify the types of electric drives? Among them, describe the operation of any one category of the drives classified. [7M]  
 b) Give the applications of electrical drives as per the utilization of energy. [7M]

**UNIT-III**

5. a) Summarize about the welding process with necessary diagram? [7M]  
 b) Notify the use of electricity in the following type of welding [7M]  
 i) resistance welding  
 ii) arc welding

(OR)

6. a) Compare the advantages of Electric welding with respect other types of welding. [7M]  
 b) Write an advantages of electric heating. [7M]

**UNIT-IV**

7. a) Name significant features of traction motors in detail. [7M]  
 b) Draw the speed time curve for a different services. [7M]

(OR)



8. a) Review the existing electric traction system in India-Suggest any one traction system by your answer? [7M]  
b) Write about tractive effort and specific energy consumption relation electric traction. [7M]

**UNIT-V**

9. a) Following energy storage systems are used for energy storage purpose – [7M]  
Prepare your answer related to each one by its advantage.  
i) thermal energy ii) electrical energy  
b) Give the comparisons on different energy technologies. [7M]
- (OR)
10. a) Significance of energy storage system – how this statement is true, answer with proper reasonable points? [7M]  
b) Write some applications of energy storage systems. [7M]

