



*R18 Regulation*  
**TKR COLLEGE OF ENGINEERING AND TECHNOLOGY**  
(Autonomous, Accredited by NAAC with 'A' Grade)

*Subject code: 2E8BG*

**B.Tech VIII Semester Regular Examinations, June 2022**

**UTILIZATION OF ELECTRICAL ENERGY**  
(ELECTRICAL AND ELECTRONICS ENGINEERING)

**Maximum Marks: 70**

Date: 20.06.2022 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
  2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
  3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
  4. Each question carries 10 marks and may have a, b, c, d as sub questions.

**Part-A**

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 What are different methods of modes of heat transfer?
- 2 State different types of drives and give the advantages and disadvantages of any one of them.
- 3 State the principal of dielectric heating and give its applications.
- 4 Differentiate A.C. and D.C. Welding.
- 5 Define illumination.
- 6 Compare tungsten filament lamp and fluorescent tube
- 7 Is that necessary to reduce the current drawn by the traction motor for its smooth control? Justify.
- 8 What are the Special features of traction motor?
- 9 What is meant by adhesive weight?
- 10 List the effects of traction by varying acceleration.

**Part-B**

Answer All the following questions.

(5X10M=50Marks)

- 11
    - i. Write short notes on continuous, intermittent and variable loads, load equalization. (6)
    - ii. Deduce the necessary expression for the temperature rise of an electric machine. (4)
- OR
- 12 What are the types of industrial loads? Explain in detail with example. (10)
- 13
    - i. List out the advantages and explain about the applications of electric heating. (5)
    - ii. Discuss about the criteria to select frequency for heating processes. (5)
- OR
- 14 What is meant by electric welding and explain the various features of resistance and arc welding. (10)
- 15 Explain the step-by-step procedure to design and to calculate the amount of flood lighting. (10)
- OR
- 16
    - i. State the laws of illumination. Derive it's expressions. (6)
    - ii. Explain the operation of photometry and integrating sphere. (4)

- 17
- i. What are the methods of electric braking? (2)
  - ii. Draw and explain about the plugging, rheostat braking and regenerative braking methods. (8)

OR

- 18 Give the detailed review of existing electric traction systems in India. Take a problem from the review and provide your ideas to overcome the problem. (10)

- 19 Define coefficient of adhesion as the ratio of tractive effort and derive the necessary expression with related illustrations. (10)

OR

- 20
- i. Explain the reasons for having greater coefficient of adhesion in electric traction when compared to other traction methods. (4)
  - ii. Explain the effect of varying acceleration and braking retardation in traction. (6)