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Paper Id: 120228 **Roll No.** | | | | | | | | | | |

B TECH
(SEM-VIII) THEORY EXAMINATION 2018-19
UTILIZATION OF ELECRTRICAL ENERGY AND TRACTION

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If you require any missing data, choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. What is arc type heating?
b. What is dielectric heating?
c. Define Welding.
d. What is Faraday's second law of electrolysis?
e. What is Luminous flux?
f. Enumerate important refrigeration applications.
g. What are the various traction systems do you know?
h. What is meant by speed time curve?
i. State the significant features of traction drives.
j. Traction motors are given one hour rating as well as continuous rating?

SECTION B

2. Attempt any *three* of the following: 10x3=30

a. State and explain advantages of electrically produced heat. What are the essential properties of resistance heating elements?
b. Explain arc blow effect at the edges and due to ground currents. What are the advantages of using coated welding electrodes?
c. Explain laws of illumination and also describe various factors to be considered for good lighting.
d. What are the various traction systems in practice in our country? Give the advantages of electric drives with its limitations and discuss briefly the factors governing the final choice of traction system.
e. Explain the principle of linear induction motor. Also explain Diesel electric traction.

SECTION C

3. Attempt any *one* part of the following: 10x1=10

a. What is induction heating? Define its application and advantages.
b. Describe the complete classification of electric heating.

4. Attempt any *one* part of the following: 10x1=10

a. Explain any four applications of electrolysis.
b. What do you understand by resistance welding? Discuss the effect of welding time of resistance welding on the quality of the weld?

5. Attempt any *one* part of the following: 10x1=10

a. Describe with neat sketches, various types of electric light fittings used for illumination.

b. Discuss the domestic type refrigerator in detail. What is the main difference between a refrigerator and water cooler and between water cooler and air conditioner?

6. Attempt any *one* part of the following: 10x1=10

a. Explain various functions Traffic effort exerted by traction unit is supposed to perform and derive and expression for total tractive effort.

b. State the advantages of electric traction over other non- electrical systems of traction. What are the requirements of an ideal traction system?

7. Attempt any *one* part of the following: 10x1=10

a. How direction of rotation of a traction motor is reversed? Explain the working principle of Metadyne control of traction motor. Also discuss its merits and demerits.

b. Discuss the advantages of series-parallel starting against the ordinary rheostatic starting for a pair of DC traction motors.