

Enrollment No: _____ Exam Seat No: _____

C.U. SHAH UNIVERSITY

Winter Examination-2019

Subject Name: Electrical Power Utilization & Traction

Subject Code: 4TE07EUT1

Branch: B.Tech (Electrical)

Semester: 7

Date: 22/11/2019

Time: 10:30 To 01:30

Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
 - (2) Instructions written on main answer book are strictly to be obeyed.
 - (3) Draw neat diagrams and figures (if necessary) at right places.
 - (4) Assume suitable data if needed.
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- Q-1 Attempt the following questions: (14)**
- a) Which motor is most suitable for traction purpose? (1)
 - b) Draw torque-speed characteristics of dc shunt motor. (1)
 - c) Define schedule speed. (1)
 - d) Draw torque-slip characteristics of induction motor. (1)
 - e) Define utilization factor. (1)
 - f) What do meant by illumination? (1)
 - g) Write factor affecting specific energy consumption. (1)
 - h) Ward –Leonard controlled dc drives are usually for _____ duty elevators. (1)
 - (a) Light
 - (b) Heavy
 - (c) Small
 - (d) Medium
 - i) The most economical methods of braking is (1)
 - (a) Plugging
 - (b) Dynamic braking with separate excitation
 - (c) Dynamic braking with self-excitation
 - (d) Regenerative braking.
 - j) A flywheel is generally used in (1)
 - (a) Cement mill drive
 - (b) Paper mill drive
 - (c) Rolling mill drive
 - (d) Sugar centrifuge drive.
 - k) Direct resistance heating is used in (1)
 - (a) Electrode boiler
 - (b) Salt-bath furnace
 - (c) Resistance welding
 - (d) All of above.
 - l) The speed of a steam locomotive is controlled by (1)



- (a) Applying brakes
- (b) Gear boxes
- (c) Regulating steam flow to engine
- (d) Flywheel.
- m) Which motor is used for lagging as well as lagging power factor? (1)**
 - (a) Synchronous motor
 - (b) Induction motor
 - (c) DC motor
 - (d) AC motor
- n) The speed-time curve for urban service has no (1)**
 - (a) Coasting period
 - (b) Free running period
 - (c) Braking period
 - (d) Acceleration period.

Attempt any four questions from Q-2 to Q-8

- Q-2 Attempt all questions (14)**
 - a) Write short note on electric braking of dc motor. (7)
 - b) Briefly explain various types of transmission of drives. (7)
- Q-3 Attempt all questions (14)**
 - a) Write the requirement of an ideal traction system and explain different system of traction. (7)
 - b) Explain different system of track electrification. (7)
- Q-4 Attempt all questions (14)**
 - a) Draw & explain trapezoidal speed time curve for electric traction. (7)
 - b) Explain series-parallel control with mathematical equation. (7)
- Q-5 Attempt all questions (14)**
 - a) Explain below mention lamp with suitable figure. (7)
 - (a) Fluorescent lamp
 - (b) LED lamp.
 - b) State and explain different types of lighting schemes. (7)
- Q-6 Attempt all questions (14)**
 - a) Classify different process of electric heating. Explain direct arc and indirect arc heating system. (7)
 - b) State and explain different laws of illumination. (7)
- Q-7 Attempt all questions (14)**
 - a) Write short note on di-electric heating. (7)
 - b) Define electric welding and explain methods of resistance welding. (7)



Q-8

Attempt all questions

(14)

- a) Define the term electro-deposition and write the factors governing deposition process. (7)
- b) Write short note on refrigerator. (7)

