Enrollment No: _____ Exam Seat No: _____

C.U. SHAH UNIVERSITY

Winter Examination-2018

Subject Name: Electrical Power Utilization & Traction

Subject Code: 4TE07EUT1 Branch: B.Tech (Electrical)

Semester: 7 Date: 06/12/2018 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.

Q-1 **Attempt the following questions:** **(14)**

a) Which motor is used for high starting torque? **(1)**
(a) D.C.Shunt (b) D.C. Series
(c) Synchronous motor (d) D.C.Compound motor.

b) For dc series motor which formula is correct? **(1)**
(a) Eb $\alpha \varphi$ (b) N α Eb /φ
(c) Both (d) None

c) In which electrical drive both series and shunt field winding are used? **(1)**
(a) D.C.Shunt (b) D.C. Series
(c) Compound Motor (d) Induction motor.

d) Which starter is used for 3 phase induction motor? **(1)**
(a) Star delta (b) 3 point
(c) 4 point (d) None

e) Which motor are suitable for the traction purpose? **(1)**

f) Draw characteristics of d.c. series motor. **(1)**

g) Define maximum speed. **(1)**

h) What do you meant by tractive effort? **(1)**

i) Define Schedule speed for traction. **(1)**

j) List the name of braking for traction system. **(1)**

k) Define luminous flux. **(1)**

l) Write factor affecting specific energy consumption. **(1)**

m) Define maintenance factor. **(1)**

n) Write advantages of ideal traction system. **(1)**

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

Q-2 **Attempt all questions** **(14)**

	a)	Write merits and demerits of Electric drives.	**(7)**
	b)	Draw & explain quadrilateral speed time curve for electric traction.	**(7)**
Q-3		**Attempt all questions**	**(14)**
	a)	Write Short note on: (1) Kando system (2) D.C.system for track electrification.	**(7)**
	b)	With a suitable diagram, describe series parallel control of d.c.series motor.	**(7)**
Q-4		**Attempt all questions**	**(14)**
	a)	A Train has schedule speed of 60 kmph between stops which are 6 km apart. Determine the crest speed over the run assuming. (1) Duration of stops as 60 sec (2) Acceleration as 2 kmphps (3) Retardation as 3 Kmphps. Consider Speed-time curve is trapezoidal.	**(7)**
	b)	State the different advantages and disadvantages of steam engine drive and direct internal combustion engine drive.	**(7)**
Q-5		**Attempt all questions**	**(14)**
	a)	State and explain different laws of illumination.	**(7)**
	b)	Explain different types of lighting schemes.	**(7)**
Q-6		**Attempt all questions**	**(14)**
	a)	Classify different electric heating methods and explain direct and indirect resistance heating.	**(7)**
	b)	Write short note on di-electric heating and give its advantages and applications.	**(7)**
Q-7		**Attempt all questions**	**(14)**
	a)	Discuss the objective of electro plating. Describe any one process for electroplating.	**(7)**
	b)	With a neat diagram explain Ajax-Wyatt furnace and state advantages of it.	**(7)**
Q-8		**Attempt all questions**	**(14)**
	a)	Explain with neat and clean diagram (1) Incandescent lamp (2) Fluorescent tube light.	**(7)**
	b)	Write short note on water cooler.	**(7)**