

SUBJECT CODE NO:- P-343
FACULTY OF ENGINEERING AND TECHNOLOGY
B.E.(EEP/EE/EEE) Examination May/June 2017
Electric Traction & Utilization [Elective-II]
(Revised)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Use suitable data if required.
 - ii. Solve question no.1 from section A and question no. 6 from section B are compulsory.
 - iii. Solve any two questions from remaining questions from each sections A and B.

Section A

- Q.1 Solve any five 10
- a) Why steam engine is not suitable for underground railways.
 - b) What are the limitations of battery electric drive?
 - c) What is the major drawback of electric traction?
 - d) What is meant by dead weight?
 - e) What is meant by crest speed?
 - f) What is meant by coefficient of adhesion?
 - g) What is meant by speed time curve?
 - h) Why 3 phase induction motor not used in electric traction.
- Q.2 05
- a) Deduce the expression for sag calculation for a trolley wire.
 - b) Write short note on railways. 05
 - c) Describe with a neat diagram the pantograph collector. 05
- Q.3 05
- a) Explain the working of linear induction motor for traction purposes.
 - b) Describe briefly a battery powered vehicle. 05
 - c) What steps are taken to reduce the interference in the telecommunication circuits? 05
- Q.4 08
- a) Compare the following systems of track electrification a) DC system b) AC system
 - b) Give the nature and specifications of supply systems for electric traction used in India. 07
- Q.5 05
- a) Write short note on composite system.
 - b) What is a drum controller? Explain with neat diagram. 07
 - c) What are the major equipment provided at traction substation? 03

Section B

- Q.6 Solve any five 10
- a) What is practical unit of refrigeration?
 - b) What is meant by speed time curve?
 - c) Why hot things are not put in regenerator.
 - d) Define the term coasting in electric traction.
 - e) What is coefficient of adhesion?
 - f) What are the factors which affect the schedule speed of a train?
 - g) What is the main difficulty associated with series parallel control?

- h) Why gear drive necessary in traction motors.
- Q.7 a) Discuss the method of electric braking for traction motors. 05
 b) What are advantages and disadvantages of regenerative braking of traction motor? 05
 c) Describe auxiliary electrical equipment for an electric locomotive. 05
- Q.8 a) Assume a trapezoidal speed time curve and derive an expression for the maximum speed. 08
 b) What short note on rheostatic braking. 05
 c) Write methods of traction motor control. 02
- Q.9 a) Define the tractive effort and derive an expression of tractive effort for the propulsion of the train. 08
 b) Write short note on magnetic track Brakes. 07
- Q.10 a) Explain with the help of diagram the working of window type room air conditioner. 08
 b) With the help of a circuit diagram explain the working of a water cooler. 07