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**SUBJECT CODE NO: E-144**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**B.E.(EEP/EE/EEE) Examination Nov/Dec 2017**  
**Elective-II: Electric Traction & Utilization**  
**(REVISED)**

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i) Q.1 & Q.6 are compulsory.
  - ii) Solve any two questions from section A and B excluding compulsory questions.
  - iii) Assume suitable Data.

**Section A**

- Q.1 Attempt any five. 10**
- a) Define Traction.
  - b) Give the principle of DC generator.
  - c) Give the principle of DC motor.
  - d) What is the function of flywheel drive?
  - e) Define sag and Tension.
  - f) What are the different component of traction substation?
  - g) Draw the characteristics of traction motors.
  - h) Give the function of SCR.
- Q.2 a) Explain single phase high frequency AC system. 08**
- b) Explain signalling interference in telecommunication system. 07**
- Q.3 a) Explain AC electric locomotive with block diagram. 08**
- b) Explain constructional details of DC traction motors with neat diagram. 07**
- Q.4 a) Explain suitability of series motor for traction duty. 08**
- b) Give the classification of Electric traction. Explain any one. 07**
- Q.5 a) Write a short note on Repulsion motor. 08**
- b) Write a short note on Induction motor. 07**

## Section B

- Q.6 Attempt any five** 10
- a) What are the different traction motor control methods?
  - b) What is Duty cycle?
  - c) What is the use of interlocks?
  - d) Draw speed time curve of Train movement and braking.
  - e) Give the difference between electric and mechanical braking system.
  - f) What are the difference types of Air – Conditioning system?
  - g) What type of machine used in domestic Refrigerator and Why? Explain.
  - h) What are the different factors affecting the speed of train.
- Q.7**
- a) Explain series – parallel controllers. 08
  - b) Explain Room Air conditioner system in detail. 07
- Q.8**
- a) Explain Master controllers. 08
  - b) Explain Tractive effort calculations. 07
- Q.9**
- a) Explain Rheostatic braking system. 08
  - b) Explain use of Metadyne and Megavolt. 07
- Q.10**
- a) Write a short note on Regenerative braking. 08
  - b) Write a short note on Water cooler. 07