

**B.Tech. – VIEP – ELECTRICAL ENGINEERING
(BTELVI)**

00994 Term-End Examination

June, 2014

BIEEE-011 : ELECTRIC ENERGY UTILIZATION

Time : 3 hours

Maximum Marks : 70

Note : Attempt any five questions. Each question carries equal marks. Use of scientific calculator is permitted.

1. 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. 6+4+4

2. (a) What do you understand by speed-time curves ? What is its use in practice ? 6
(b) An electric train has an average speed of 42 km/h on a level track between stops 1400 m apart. It is accelerated at 1.7 km/h/s and is braked at 3.3 km/h/s. Draw speed-time curve for the run. 8

3. (a) Give classification of various electric heating methods along with their working principle. 8
(b) What is polar curve ? How is it useful to an illumination engineer ? 6

4. (a) What is the fundamental difference between electric arc welding and resistance welding? Also write limitations of each. 7
- (b) Explain the construction and operation of a fluorescent tube and compare it with tungsten filament lamp. 7
5. (a) Define the refrigeration. Explain a refrigeration cycle by means of a neat sketch. 7
- (b) What are the applications of electrolysis? Explain basic laws which govern electro-deposition. 7
6. (a) Draw electric circuit of a refrigerator and explain its working. How can temperature inside the refrigerator be adjusted? 8
- (b) Explain how regenerative braking can be obtained in D.C. locomotive. 6
7. Write short notes on any **two** of the following : $2 \times 7 = 14$
- (a) Hybrid electric vehicles
- (b) Dielectric heating
- (c) Design of interior lighting system
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