6442

6442

C16–EE–403

BOARD DIPLOMA EXAMINATION, (C–16)
OCT/NOV—2018
DEEE—FOURTH SEMESTER EXAMINATION

ELECTRICAL UTILISATION AND TRACTION

Time : 3 hours]　　　　　　　　　　　　　　　　　[*Total Marks* : 80

PART—A　　　　　　　　　　　　　　　　　　3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Define plane and solid angles.

2. State the laws of illumination.

3. State the materials employed for heating elements and their percentage.

4. List any three applications of direct and indircet arc furnaces.

5. Compare LED lamps and CF lamps in any three aspects.

6. List the advantages of remote operated power devices.

7. Sketch the speed time curves of urban and sub-urban services.

8. Define specific energy consumption and mention the factors affecting the specific energy consumption.

9. Write a brief note on Mid on generation.

10. List out any six requirements of train lighting.

Instructions : (1) Answer *any* **five** questions.

(2) Each questions carries **ten** marks.

(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. (a) Explain different types of lamp fittings.   3

(b) State the requirements of good lighting.   7

12. (a) Define (i) Illumination, (ii) MSCP.   3

(b) Two lamps luminous intensity 150 candela and 200 candela are mounted at 10m and 15m respectively. The horizontal distance between the lamp posts is 30m. Calculate the illumination in the middle of the post.   7

13. Explain the methods of controlling temperature of resistance heating.

14. Expain the concept of energy auditing and management.

15. (a) Derive an expression for tractive effort required for acceleration and to overcome gradient and train resistance.   7

(b) State the need of booster transformer.   3

16. (a) List the various overhead equipments(OHE) in traction.   2

(b) The average speed of an electric train is 45 kmph and distance between two stops is 2.1km. The acceleration, coasting and braking retardations are 2.5 kmphps, 0.15 kmphps and 3 kmphps respectively. Find the distance covered during each period.   8

17. (a) Explain the method of obtaining constant output.   4

(b) What are the Major equipment at Traction substation? Briefly explain any one of them.   6

18. (a) Explain the principle of induction heating.

(b) Mention the requirements of railway coach air-conditioning.

* * *