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C14–EE–602

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BOARD DIPLOMA EXAMINATION, (C–14)

OCT/NOV—2017

DEEE—SIXTH SEMESTER EXAMINATION

ELECTRIC 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 average speed and schedule speed.

2. Show the various parts of speed-time curve with a neat diagram.

3. Define coefficient of adhesion.

4. What is the importance of section insulator?

5. List different types of signal boards of OHE.

6. Which parts are included in annual maintenance?

7. Write a brief note on interruptors.

8. What are the advantages of end-on generation?

9. Describe the methods of obtaining constant output.

10. Lis the requirements of train lighting.

PART—B

10×5=50

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

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

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

11. Derive the expression for maximum speed, total distance of run of a trapezoidal speed-time curve.

12. Derive expression for tractive effort.

13. An electric train of weight 300 ton is started on a 3% up gradient with uniform acceleration and reaches a speed of 60 kmph in 30 second. The rotational inertia is 12%. Find the torque exerted by each of the 10 motors if the wheel are 90 cm diameter, gear efficiency 95% and gear ratio is 4. taken the tractive resistance of 45 newton per ton.

14. Explain about unisulated and insulator overlaps.

15. Explain importance of neutral section with a diagram in electric traction.

16. Explain with legible sketch the construction of *(a)* diamond pentograph and *(b)* faiveley pentograph.

17. Explain major equipment in traction substation with neat diagram.

18. Explain feeding and sectioning arrangements with a single line diagram.

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