

G 632

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2014

Seventh Semester

Branch : Electrical and Electronics Engineering

UTILISATION OF ELECTRICAL POWER (E)

(Old Scheme - Prior to 2010 Admissions)

[Supplementary]



Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

Each question carries 4 marks.

1. Discuss the disadvantages of group drives.
2. What are the essential requirements of satisfactory braking?
3. Explain Coefficient of Adhesion.
4. Discuss the requirements of an ideal traction system.
5. List the properties of materials used as heating elements.
6. Explain clearly the terms - Hold time and Squeeze time.
7. Discuss the necessity of energy management.
8. What is energy auditing process?
9. Explain the following :
 - (a) Luminance.
 - (b) Luminous Intensity.
10. What are polar curves?

(10 × 4 = 40 marks)

Part B

Answer all questions.

Each question carries 12 marks.

11. Explain the characteristics and features of various drives used in (a) Paper mills ; (b) Cranes.

Or

Turn over

12. Write short notes on : (a) Plugging ; and (b) Size and rating of motors.

13. (a) Explain Series parallel control of D.C. series motors.

(b) Discuss simplified speed time curve for main line service and suburban service. .

(6 + 6 = 12 marks)

Or

14. A 250 tonne train with 10% rotational inertia effect is started with uniform acceleration and attains a 60 kmph in 30 seconds on level track. Determine the specific energy consumption, if the journey is to be made according to a simplified trapezoidal curve, the acceleration 2 kmphps, braking retardation 3 kmphps, distance between stations 1.25 km, efficiency of motors 88%, track resistance 50 kg/tonne.

15. Explain the various types of Resistance heating processes.

Or

16. A slab of material having relative permittivity 4 and p.f. of 0.04 with 2 cm thickness and 15 sq.cm. area is to be heated using dielectric heating. The power required is 200 watts and a frequency of 30 MHz. Determine the voltage required and the current that will flow through the material. If the voltage is to be limited to 600 V, what would be the frequency for the same power requirement.

17. Explain the various factors to be taken into account for designing scheme for (a) Street lighting ; and (b) Factory lighting.

Or

18. Discuss the types of Air-Conditioning systems. Explain the various processes in the operation of a typical window air-conditioning unit.

19. Explain how energy management techniques can be applied to residential buildings. How energy saving is achieved in domestic sector ?

Or

20. Discuss the need for adopting non-conventional sources. Explain solar power generation.

[5 × 12 = 60 marks]

