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Question Paper Code : X 67593

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020
Eighth Semester
Electrical and Electronics Engineering
EE 1452 – ELECTRIC ENERGY GENERATION, CONSERVATION AND
UTILISATION
(Regulations 2008)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Mention any three methods of conventional power generation.
2. Give the advantages of distributed generation.
3. Distinguish between load curve and load duration curve.
4. State the significance of using energy efficient equipment.
5. Define utilization factor and space height ratio.
6. What is meant by throwing power in electrolysis ?
7. Define the term 'co-efficient of adhesion'.
8. What are the applications of traction motors ?
9. Write the properties of heating element.
10. Write the principle of operation of induction heating.

PART – B

(5×16=80 Marks)

11. a) i) Describe with neat sketch the construction and principle of operation of a hydel power plant. (10)
ii) Explain in detail about aircraft electrical system. (8)
- (OR)
- b) i) List the prospects of distributed generation system. (8)
ii) Explain about the electrical system in ships. (8)



12. a) Explain with a suitable example, the design for improvement of power factor using power capacitors. **(16)**

(OR)

b) Write short notes on :

i) Tariff structure. **(8)**

ii) Energy auditing. **(8)**

13. a) i) Write about the mechanics of train movement. **(8)**

ii) Explain the recent trends in electric traction. **(8)**

(OR)

b) Define solid and plane angle and derive the relationship between them. **(16)**

14. a) i) Discuss and compare various arrangements of current collection used in electric traction. **(10)**

ii) What are the requirements for ideal traction and show which drive satisfies almost all the requirements ? **(6)**

(OR)

b) Discuss various motors used for traction. **(16)**

15. a) i) Draw a neat sketch of Ajax-Wyatt induction furnace and describe its working. **(8)**

ii) An insulating material 2 cm thick and 200 sq.cm. in area is to be heated by dielectric heating. The material has permittivity of 5 and p.f. as 0.05. Power required is 400 watts and frequency of 40 MHz. Determine the voltage and the current that will flow through the material. If the voltage were limited to 700 volts, what will be the frequency to get the same loss. **(8)**

(OR)

b) i) Explain the design procedure of the heating element when the power and voltage of the oven is known. **(8)**

ii) Explain the various types of resistance welding. **(8)**
