



B.E DEGREE EXAMINATIONS: MAY 2015

(Regulation 2009)

Sixth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

EEE113 : Generation & Utilization of Electrical Energy

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Which of the following power plants are most suitable for peak loads?
 - a) Diesel and Thermal
 - b) Diesel and Gas turbine
 - c) Diesel and Hydel
 - d) Diesel and Nuclear
2. Which of the following is a natural renewable energy source?
 - a) Bitumen
 - b) Natural Gas
 - c) Solar Energy
 - d) Coal
3. Candela is the unit used to measure
 - a) Luminous Flux
 - b) Illumination
 - c) Lamp efficiency
 - d) Luminous Intensity
4. Which of the following metal/alloy is best suited as elements for heater coils?
 - a) Tungsten
 - b) Copper
 - c) Nichrome
 - d) Aluminium
5. The period during which the train is allowed to run due to own momentum is
 - a) Acceleration period
 - b) Coasting period
 - c) Free running period
 - d) Braking period
6. The voltage level used for electrical traction in recent period is
 - a) 11kV AC
 - b) 230 kV AC
 - c) 25kV DC
 - d) 25kV AC
7. Which of the following is same as electro forming?
 - a) Electro facing
 - b) Electro typing
 - c) Electro deposition
 - d) Electro polishing

8. Electro plating is done for
 - a) protecting metals against corrosion
 - b) providing shiny appearance to surface
 - c) Providing reflecting properties
 - d) all of these a), b) and c)
9. The penalty for low power factor is imposed on
 - a) Residential consumers
 - b) Industrial consumers
 - c) Commercial consumers
 - d) All type of consumers
10. Low power factor of an industrial plant is uneconomical for
 - a) Owner of the plant only
 - b) Service provider only
 - c) Both a) and b)
 - d) Either a) or b) but not both

PART B (10 x 2 = 20 Marks)

11. List the merits of Cogeneration.
12. What is meant by distributed generation?
13. State the laws of illumination.
14. Why tungsten is suitable for filament material of a lamp?
15. Define: Tractive effort
16. What are the advantages of pantographs?
17. What is meant by electro deposition of rubber?
18. What is meant by polarization?
19. What are green buildings?
20. List the various causes of low power factor.

PART C (5 x 14 = 70 Marks)

21. a) What is meant by chain reaction in nuclear power plant? Explain the process of nuclear fission with a neat diagram.

(OR)

- b) Explain the MHD power generation system with suitable diagrams

22. a) Describe the working principle and construction of an coreless Induction furnace

(OR)

- b) (i) Describe the working of Sodium Vapour lamp with neat diagram. (10)
- (ii) What is Halogen lamp? And explain the operation briefly. (4)

23. a) Draw the typical speed-time curve of Electric traction and explain. Derive the formulae for the following:
i) Acceleration ii) Maximum speed iii) Retardation

(OR)

- b) (i) What are the requirements of an ideal braking system in electric traction? List the various methods of braking system. (10)
(ii) List the various current collecting methods. (4)

24. a) (i) Explain the two laws of electrolysis (6)
(ii) List and explain the applications of the electrolysis process. (8)

(OR)

- b) Explain the process of electroplating Also explain the various methods of electroplating.

25. a) What is a tariff? Compare the various tariff methods practiced for different consumer types.

(OR)

- b) (i) Explain the importance of energy conservation. (5)
(ii) Explain how energy conservation can be promoted and practiced in Household sector, Commercial sector and industry sector. (9)
