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Question Paper Code: 57303

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Seventh Semester

Electrical and Electronics Engineering

15UEE703- ELECTRIC ENERGY UTILIZATION

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The voltage used for suburban train in D.C system is usually CO1- U
(a) 12V (b) 24V (c) 220V (d) 600V to 750V
2. For regenerative braking, the motor which is not suitable is____. CO1- U
(a) DC shunt motor (b) DC component motor
(c) DC series motor (d) AC shunt motor
3. Illumination level required for precision work is around CO2- R
(a) 50 lm/m² (b) 100 lm/m²
(c) 200 lm/m² (d) 500 lm/m²
4. Flood lighting is used for CO2- R
(a) For enhancing the beauty of building at nights (b) For illuminating sports stadium
(c) For illuminating show cases (d) All of these
5. Which type of heating is used for sterilization? CO3- U
(a) High frequency eddy current heating (b) Coreless type heating
(c) Core type heating (d) Dielectric heating

6. In percussion welding, the heat is produced by a rapid discharge of stored electrical energy from CO3- U
- (a) Capacitor (b) Inductor
(c) Resistor (d) Transformer
7. Capital costs are the costs associated with CO4- U
- (a) Design (b) Installation & Commissioning of project
(c) a & b (d) Savings from project
8. The main objective of energy management is to CO4- R
- (a) Minimize energy cost
(b) Minimum environmental efforts
(c) Minimum optimum energy procurement and utilization
(d) All the above
9. In presence of which gas is the fuel burnt to generate energy in form of heat? CO5- U
- (a) Oxygen (b) Hydrogen
(c) Methane (d) Nitrogen
10. The process of burning fuels in presence of oxygen is called____. CO5- App
- (a) Induction (b) Ignition
(c) Condensation (d) Combustion

PART – B (5 x 2= 10Marks)

11. Classify the systems for electric traction CO1-R
12. Explain briefly about dielectric heating. CO2-U
13. List out the requirements of a good heating material. CO3-R
14. How to improve the power factor? CO4-R
15. Enumerate the properties of energy storage devices. CO5-R

PART – C (5 x 16= 80Marks)

16. (a) Discuss the different methods of traction motor control and explain. CO1- Ana (16)

Or

- (b) A train has scheduled speed of 60 km/hr between stops which are 6 km apart. Determine crest speed over run. Assume trapezoidal speed time curve. The train accelerates at 2 km/hr/sec and retards at 3km/hr/sec. The duration of stop is 60 sec. CO1- Ana (16)
17. (a) An incandescent lamp hangs from the ceiling of a room. The illumination below the lamp vertically downwards is 80 lux. When the illumination is measured at a distance of 2 m from the vertical from the ceiling, its value is 40 lux. Find the candle power of the lamp and its vertical distance from the floor CO2- App (16)
- Or
- (b) (i) Explain about flood lighting system . CO2- U (8)
(ii) Explain about Energy saving measures. CO2- U (8)
18. (a) (i) What are the types of ARC furnace? Describe the operation of them. CO3- U (8)
(ii) Explain the construction and working principle of dielectric heating. CO3- U (8)
- Or
- (b) Explain the various types of resistance welding with neat sketch. CO3- U (16)
19. (a) What is cost of electrical generation? What are the various types of cost associated with power generation? CO4- U (16)
- Or
- (b) What is a tariff? Discuss and compare various tariff used in practice. CO4- U (16)
20. (a) Explain the need of electric vehicles and also discuss about the challenges involved in it. CO5- U (16)
- Or
- (b) Explain the various energy storage systems. CO5- U (16)

