A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 57303

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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 magnitude for the traction effort which is required for the propulsion of the train depends on CO1- U

   (a) The adhesive weight (b) Friction between the driving wheel and the track

   (c) Both a and b (d) Neither A nor B

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. The main electrode of high pressure mercury vapour lamp is made up of CO2- R

   (a) Quartz (b) Hard glass

   (c) Tungsten (d) Bronze

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. The voltage-current characteristics of the arc welding must be CO3- U

(a) Exponentially rising (b) Drooping

(c) Straight line (d) Parabolic

7. If L is the value of equipment at the end of its useful life,n is the number of years of useful life equipment and P is the initial cost than the annual depreciation rate is given by CO4- U

(a) (P-L)/ n (b) (P-n) /L

(c) (L-n)/P (d) n/(L-P)

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. List the advantages of electric braking. CO1-R

12. Define MHCP. CO2-U

13. Give various types of electric arc welding. CO3-R

14. What are the factors that influence fixing up of tariff to the consumers? CO4-R

15. Enumerate the properties of energy storage devices. CO5-R

PART – C (5 x 16= 80Marks)

16.	(a)	Analyze the criteria to be considered while selecting a motor for a specific application. Explain with example.	CO1- Ana	(16)
		Or		
	(b)	(i) Explain different types of electrical breaking systems.	CO1- Ana	(8)
		(ii) Twos station A and B are 12km apart and average speed of the train is 60 kmph The acceleration is 5kmph, retardation during costing is 30kmph and braking is 5 kmph respectively. Taking quadrilateral approximation of speed, time curve, determine the duration of acceleration coasting and breaking periods and distance covered during these periods.	CO1- Ana	(8)
17.	(a)	(i) State and Prove laws of Illumination.	CO2- App	(8)
		(ii) Describe with a neat sketch the principle of operation of fluorescent lamp. Mention the function of each component.	CO2- App	(8)
		Or		
	(b)	(i) Illustrate the construction and working of sodium vapour lamp with neat diagram.	CO2- App	(8)
		(ii) Explain the principle of street lighting.	CO2- App	(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)	Discuss in detail about various types of electric welding.	CO3- U	(16)
19.	(a)	(i) Explain the various types of cost associated with power generation.	CO4- U	(8)
		(ii) Discuss and compare various tariff used in practice.	CO4- U	(8)
		Or		
	(b)	Explain the different methods of power factor correction.	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)