



B.Tech - Even Sem : End Semester Exam  
Academic Year:2021-2022

**19EE3104 - UTILISATION OF ELECTRICAL ENERGY**

Set No: 2

Time:

Max.Marks: 100

S.NO	Answer All Questions	Choice	Options	Marks	CO	CO BTL	COI BTL
1.	Explain any 4 classes of motor duty in detail.	choice Q-2		10Marks	CO1	2	2
2.	Describe the different types of loads with suitable examples.			10Marks	CO1	2	2
3.	Discuss the factors influencing the choice of electrical drives.	choice Q-4		15Marks	CO1	2	2
4.	Explicate the classification of electric drives in detail and also explain their merits and demerits.			15Marks	CO1	2	2
5.	Define the term solid angle and derive the relationship between solid angle and plane angle.	choice Q-6		10Marks	CO2	3	2
6.	Derive an expression for illumination at a point due to a perfectly diffusing surface source.			10Marks	CO2	3	2
7.	An illumination on the working plane of 32 lux is required in a room 80m X 15m. The lamps are required to be hung 4.5m above the work bench. Assume a utilization factor of 0.5, lamp efficacy of 14 lumens per watt, and candle power depreciation of 0.2, estimate the number rating and disposition of lamps. Assume a suitable value of space ratio.	choice Q-8		15Marks	CO2	3	3
8.	Describe the construction and principle of operation and application of sodium vapour lamp.			15Marks	CO2	3	3
9.	Discuss about tramways and compare the tramways with trolley buses.	choice Q-10		10Marks	CO3	3	2
10.	Describe the concept of dynamic or rheostatic braking system.			10Marks	CO3	3	2
11.	The distance between two stations is 1 km and the scheduled speed is 30 kmph. Station stopping time 20 sec. Assume braking retardation 3 Km. p.h.p.s and maximum speed 1.25 times the average speed. Determine the acceleration required to run the service if the speed-time curve is approximated by a trapezoidal curve.	choice Q-12		15Marks	CO3	3	3
12.	Explicate the average speed and scheduled speed of the train with necessary expressions.			15Marks	CO3	3	3
13.	Explicate the process of heat transfer through convection.	choice Q-14		10Marks	CO4	2	2
14.	Discuss the advantages and disadvantages of carbon arc welding.			10Marks	CO4	2	2
15.	Elucidate different methods of temperature control of resistance furnaces.	choice Q-16		15Marks	CO4	2	2
16.	Describe the operation of direct and indirect arc furnaces with their step-by-step procedure.			15Marks	CO4	2	2

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