CMR INSTITUTE OF TECHNOLOGY	USN										

Internal Assessment Test III– JAN 2022

Sub:	UTILIZATION OF ELECTRICAL POWER							Code:	17EE742/18EE742
Date:	20/12/2021	Duration:	90 mins	Max Marks:	50	Sem:	VII	Section:	A & B

Note: Answer any **Two FULL** Questions
Sketch neat figures wherever necessary. Answer to the point. **Good luck!**

		Marks	OBE CO	OBE RBT
1.	What is regenerative Braking? Explain Regenerative Braking of D.C Series Motor? Neat sketch : 4 Marks Explanation(working ,advantage, disadvantages) : 6 Marks	10	CO6	L1
2.	Explain (i) Shunt transition (ii) Bridge transition applied to series parallel starting of DC motors with neat figures State and explain (i) Shunt transition (ii) Bridge transition Neat sketch : 4 Marks Explanation(working ,advantage, disadvantages) : 6 Marks	10	CO5	L2
3.	Two motors rated at 1500V have an armature resistance 0.15ohm 500A and take the current of each during starting. The effective weight of the train is 140 tonnes and the dead weight is 120 tonnes, specific resistance is 50 Newtons/tonnes, tractive effort is 38000 newtons, speed at the end of starting period 50kmph. Find (i) Starting time (ii) Maximum Speed and (iii) Armature Loss. Formula Required : 4 Marks Starting time : 3 Marks Maximum Speed & Armature Loss : 3 Marks	10	CO6	L3
4.	A train weighing 450 ton has speed reduced by the regenerative braking from 50 to 30 kmph over a distance of 2 km on down gradient of 1.5%. Calculate the electrical energy and the overage power returned to the line tractive resistance is 50 N/ton. And, allow the rotational inertia of 10% and the efficiency conversion 80%. Formula Required : 4 Marks Electrical Energy : 6 Marks	10	CO5	L3
5.	Explain conceptual illustration of general electric vehicle with block diagram Neat sketch : 4 Marks Explanation(working ,advantage, disadvantages) : 6 Marks	10	CO6	L2
6.	With relevant Graph, explain the electric vehicle performance characteristics [speed Vs Tractive effort] Neat sketch of the graph : 4 Marks Explanation : 6 Marks	10	CO6	L2
7.	Discuss the electric energy consumption in an electric vehicle Neat sketch : 4 Marks Explanation : 6 Marks	10	CO6	L2