

CRM08	Rev 1.10	EC	21/06/2021
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CONTINUOUS INTERNAL EVALUATION - 1

Dept: EC	Sem / Div: 2 nd D/E/F	Sub: Basic Electrical Engineering	S Code: 18ELE23
Date: 25/06/2021	Time: 3:00PM – 4:30PM	Max Marks: 50	Elective: N
Note: Answer any 2 full questions, choosing one full question from each part.			

Q N	Questions	Marks	RBT	COs
PART A				
1	a State and explain Kirchoff's laws as applied to an electric circuit.	8	L1	CO1
	b Draw a neat cross section of a D.C. machine and explain the functions of each part.	10	L2	CO3
	c For the circuit shown in fig. Find the potential difference between the points X and Y.	7	L3	CO1
OR				
2	a Define rms and average value of a sinusoid. Also derive the equation for R.M.S value of an alternating current in terms of maximum value.	9	L2	CO1
	b Derive the torque equation of DC motor with usual notations.	8	L2	CO3
	c A circuit consists of a 15 Ω resistor in series with a parallel combination of two resistors 20 Ω and 30 Ω. If the current through 15 Ω is 3A, Find i) Current through branches. ii) Voltage across whole circuit iii) Power consumed by individual resistors	8	L3	CO1
PART B				
3	a Explain the generation of single phase AC induced emf with suitable diagram.	7	L2	CO1
	b Derive the emf equation of a D.C.generator.	6	L2	CO3
	c A 200V ,4 pole, lap wound, dc shunt motor has 800 conductors. The resistance of armature winding is 0.5 Ω and that of shunt field winding is 200 Ω. The motor takes a current of 21A, the flux per pole is 30mWb. Find the speed and torque developed in the motor.	7	L3	CO3

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	<p>d Find the effective resistance between the terminals A and B for the network given in fig.</p>	5	L3	CO1
OR				
4	a Explain the Characteristics of d.c. shunt motor.	9	L2	CO3
	b State ohm's law. Mention its limitations.	6	L1	CO1
	c For the current wave shown in fig. Find i)Peak current ii)Average value iii)Frequency iv)Periodic time v)Instantaneous value at t=3ms	6	L3	CO1
	d A 4 pole,1500 rpm dc generator has a lap wound armature having 24 slots with 10 conductors per slot. If the flux per pole is 0.04Wb, Calculate the emf generated in the armature. What would be the generated emf if the winding is wave connected?	4	L3	CO3