SHRI RAMSWAROOP MEMORIAL UNIVERSITY

End Semester Examination (2021-22)-Odd Semester

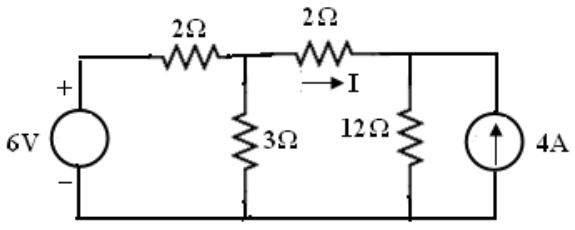
B.Tech (CSE) – I Year (I Sem)		
Course Name: Basic Electrical Engineering		**Code: BEE1701**
Time: 02 Hours		**Max Marks: 60**

University Roll No.															
(To be filled by the Student)															

Note: Please read instructions carefully:

a) *The question paper has 03 sections and it is compulsory to attempt all sections.*

b) *All questions of Section A are compulsory; questions in Section B and C contain choice.*

Section A: Very Short Answer type Questions **Attempt all the questions.**		**BL**	**CLO**	**Marks (10)**
1.	Explain KVL with suitable example.	BL2	CLO1	02
2.	Define unilateral and bilateral network.	BL1	CLO1	02
3.	Define Q factor of series RLC circuit.	BL1	CLO2	02
4.	What is the condition for maximum efficiency of transformer? Also find it's value.	BL1	CLO3	02
5.	What is the formula of back emf for DC motor for lap & wave wounded armature conductors?	BL1	CLO4	02
Section B: Short Answer Type Questions **Attempt any 03 out of 06 questions.**		**BL**	**CLO**	**Marks (30)**
1.	Determine unknown current I using KCL/KVL for the circuit shown in Figure 1.  **Figure.1**	BL5	CLO1	10
2.	A coil having a resistance of 7ohm and inductance of 31.8mH is connected to 230V, 50Hz supply. Find out i.) the current ii) phase angle iii.) power factor.	BL1	CLO2	10
3.	Compare the advantages of three phase transformer over single phase transformer.	BL4	CLO3	10
4.	Explain the working principle of split phase single phase induction motor.	BL2	CLO4	10

5.	A single phase transformer has 350 primary and 1050 secondary turns. The primary is connected to a 400V, 50 Hz supply. If the net cross sectional area of the core is 50cm^2, find i) The maximum value of flux density in the core ii) The voltage induced in the secondary winding.	BL1	CLO3	10
6.	Explain the working of dc-dc boost converter.	BL2	CLO4	10
Section C: Long Answer Type Questions/Case Study **Attempt any 01 out of 03 questions. Answer question in appropriate word limit.**		**BL**	**CLO**	**Marks (20)**
1.	**(a)** Analyze and determine the relation between line and phase quantities in three phase balanced star connected system. **(b)** A capacitor of capacitance of 79.5μF is connected in series with a non inductive resistance of 30 ohm across 100V, 50 Hz supply. Find i) impedance ii.) current iii). phase angle iv) power factor v.) active power vi.) reactive power.	BL4	CLO2	20
2.	**(a)** Draw and explain the B-H curve for the magnetic material. (**b)** The Iron loss and full load copper loss of a 100KVA, 6600/400Volts single phase transformer are 600W and 900W. Find the efficiency at full load and half load at 0.8 power factor lag. Find the load KVA for the maximum efficiency and the maximum efficiency at 0.8 power factor lag.	BL2	CLO3	20
3.	**(a)** Analyze and explain the torque-slip characteristics of three phase induction motor. **(b)** A 4- pole lap wound armature DC motor has flux per pole of 25 mWb. The number of armature conductor is 200. The motor draws armature current of 20A when connected across a 200V DC supply. Find the back emf and the speed of the motor if the armature resistance is 0.4ohm	BL4	CLO4	20
