Q. Code:176851

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

First Semester

EE18153 – ELECTRICAL MACHINES AND DRIVES

(Chemical Engineering)

(Regulation 2018/2018A)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Apply basic electrical laws for the electrical circuits and understand working of various measuring instruments.	**3**
CO 2	Analyze the characteristics of various semiconductor devices and develop circuits for an application.	**4**
CO 3	Analyze and select electrical machines for drive applications based on characteristics.	**5**
CO 4	Identify the structure and types of Electrical drives for specific applications.	**3**
CO 5	Apply AC-DC, DC-DC, DC-AC and AC-AC converter control methods for Electrical Machine and Drives.	**3**

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

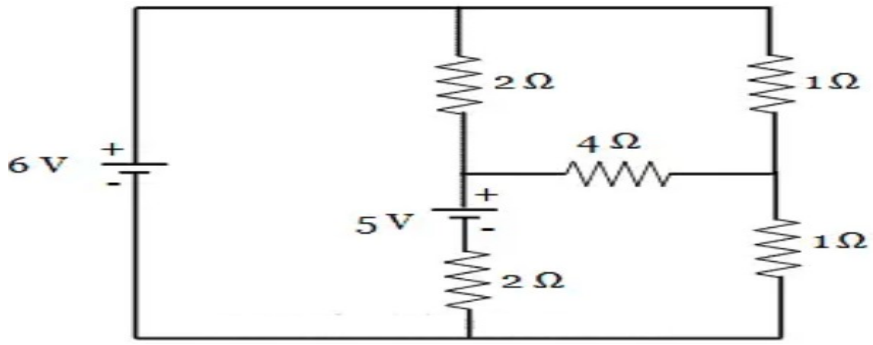
		CO	RBT LEVEL
1.	Classify different types of measuring instruments used.	**1**	**2**
2.	A pure inductive coil allows a current of 10A to flow from a 200V, 50Hz supply. Find inductance of the coil.	**1**	**3**
3.	Sketch the single phase bridge converter with RLE load.	**2**	**2**
4.	Compare ripple factor of half wave and full wave rectifier circuit.	**2**	**2**
5.	Justify the purpose of using starter for motor.	**3**	**5**
6.	Illustrate the torque-slip characteristics of three phase induction motor.	**3**	**3**
7.	List the basic elements of electrical drives.	**4**	**1**
8.	Compare AC Drives with DC Drives.	**4**	**3**
9.	List the various conventional speed controls employed for DC motor.	**5**	**1**
10.	What do you mean by VVVF control and mention its advantages?	**5**	**1**

PART- B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL
11. (a)	With simple sketch explain on different types of Torques used in Analog Measuring instruments.	**(14)**	**1**	**3**

(OR)

(b)	Determine the mesh current for the following electrical network	**(14)**	**1**	**3**



12. (a)	With neat sketch, explain the static VI characteristics of SCR.	**(14)**	**2**	**3**
	(OR)			
(b)	Explain the operation of three phase semi converter circuit with R load.	**(14)**	**2**	**3**
13. (a)	Explain the working principle of three point starter used for DC Shunt motor with neat diagram.	**(14)**	**3**	**4**
	(OR)			
(b)	**(i)** Explain the various braking methods used for Induction motor.	**(8)**	**3**	**4**
	(ii) Explain the operation of three phase auto transformer starter.	**(6)**	**3**	**4**
14. (a)	**(i)** Summarize the factors influencing the choice of electrical drives.	**(6)**	**4**	**2**
	(ii) Paraphrasing various types of electrical drives with neat diagram.	**(8)**	**4**	**2**
	(OR)			
(b)	Summarize the classes of duty. With the help of load verses time diagram explain various classes of duties.	**(14)**	**4**	**2**
15. (a)	Classify the DC to DC converters. Explain the four quadrant chopper with neat diagram.	**(14)**	**5**	**3**
	(OR)			
(b)	With neat circuit configuration explain the modes of operation of static Kramer method of slip power recovery system for SRIM.	**(14)**	**5**	**3**

PART- C (1 x 10 = 10 Marks)

(Q.No.16 is compulsory)

		Marks	CO	RBT LEVEL
16.	Reviewing the operation of three phase AC voltage controller circuit.	**(10)**	**5**	**5**

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