

Reg. No.

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B.E. / B.TECH. DEGREE EXAMINATIONS, DEC 2019

First Semester

EE18153 – Electrical Machines and Drives

(Chemical Engineering)

(Regulation 2018)

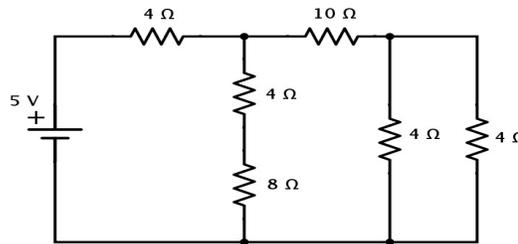
Time: Three Hours

Maximum : 100 Marks

Answer ALL questions

PART A - (10 X 2 = 20 Marks)

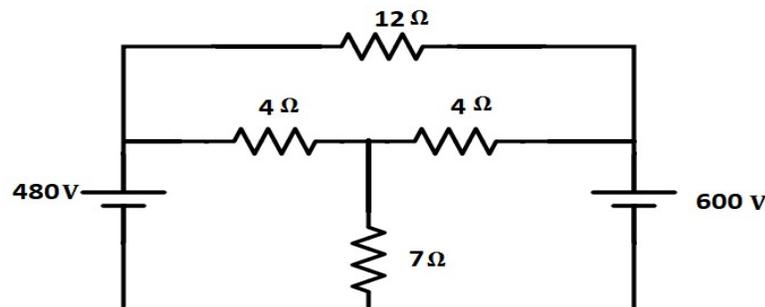
- | | CO | RBT |
|--|----|-----|
| 1. State Kirchoff's laws. | 1 | U |
| 2. Calculate equivalent resistance of circuit and total circuit current. | 1 | AP |



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|--|---|---|
| 3. What is Zener breakdown? | 2 | U |
| 4. Define holding current. | 2 | U |
| 5. What is the Necessity of starter? | 3 | R |
| 6. Compare Slip ring and Squirrel cage motor. | 3 | U |
| 7. State the advantage of an electric drive system. | 4 | R |
| 8. What is a multi motor electric drive? Give some examples. | 4 | R |
| 9. Define DC Chopper? What are the different types of Chopper? | 5 | U |
| 10. What is meant by AC Voltage controller? | 5 | U |

PART B - (5 X16 = 80 Marks)

11. (a) (i) Solve for the mesh and branch currents for the circuits shown (10) 1 AP in figure.



- (ii) A coil having a resistance of 6Ω and an inductance of 0.03H is connected across a $100 \text{ V}, 50 \text{ Hz}$ supply. Calculate
- (a) The current
 - (b) The phase angle between the current and the voltage
 - (c) Power factor
 - (d) Power.

(OR)

- (b) Explain the construction and working principle of Dynamometer type wattmeter. **(16) 1 AN**
12. (a) Describe the working of a PN junction diode with neat diagrams. Also explain its V-I characteristics. **(16) 2 AN**
- (OR)**
- (b) Explain the operation of single phase semi-converter with RLE load. Sketch the associated waveforms. **(16) 2 AN**
13. (a) Discuss in detail about the construction and working principle of a DC generator with the neat sketch. **(16) 3 AN**

(OR)

- (b) Draw and explain any two types of starting methods of three phase squirrel cage induction motor **(16) 3 U**
14. (a) What is electric drive? Explain the basic elements of an electric drive system. **(16) 4 U**
- (OR)**
- (b) (i) Explain the various classes of duty. **(10) 4 U**
(ii) Explain in detail about the various types of electric drives. **(6) U**

15. (a) Discuss the Ward-Leonard speed control system with a neat circuit diagram. Also mention its advantages and disadvantages. **(16) 5 AN**

(OR)

- (b) Explain the working of following methods with neat circuit diagram. **(16) 5 AN**
i) Kramer system ii) Scherbius system