JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year II Semester Examinations, March/April - 2021
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING
(Common to CE, ME, MMT, MIE)
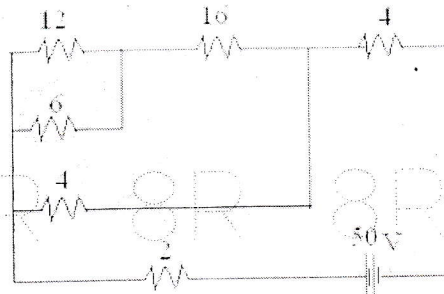
Time: 3 Hours   Max. Marks: 75

Answer any five questions
All questions carry equal marks
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1.a) Mention about the phasor representation and distinguish between real and reactive power.
 b) Calculate the equivalent resistance and source current of the combination of resistors shown in figure.   [7+8]

2.a) Explain about operation of a transformer and its voltage regulation and derive the expression for the voltage regulation for a transformer.
 b) Discuss the operational usage of switch fuse unit (SFU), MCB, ELCB and MCCB in different applications with their physical limitations.   [8+7]

3.a) Discuss about the different components of LT switch gear and their protection advantages.
 b) Explain the types of Batteries with their characteristics and write about the battery backups.   [8+7]

4.a) Derive the expression of induced emf of DC generator.
 b) Discuss the impact of controlling torque and damping torque relevant to the operation of indicating instruments.   [7+8]

5.a) Discuss the operation and working principle of synchronous generators in brief.
 b) Explain the energy band diagram of p-n junction diode for no bias, under forward bias and In reverse biased condition.   [7+8]

6.a) Discuss the operation of half wave and full wave rectifiers with and without capacitor filter.
 b) Describe the diode currents and their equations and discuss the effect of temperature on diode current.   [7+8]

7. Differentiate between NPN and PNP transistor construction and operation and discuss the input and output characteristics of the transistor in CE,CB and CC configurations. [15]

8.a) Explain the process of JFET construction and operation and how this if different from BJT.

b) Mention about the FET biasing and methods of biasing with their merits.   [8+7]

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