

June 10, 2024 02:30 pm - 05:30 pm 1T00833 - S.E.(Electrical Engineering)(SEM-III)(Choice Base Credit Grading System ) (R- 19) (C Scheme) / 51023 - Fundamentals of Electrical Machines & Measurements QP CODE: 10055384

(3 Hours)

Total Marks: 80

N.B: (1) Question No. 1 is compulsory.

(2) Attempt any three from the remaining questions.

(3) Figures to the right indicate full marks.

(4) Each question is of 20 Marks

Q.1 Attempt any 4 questions

- A What are the applications of potentiometer circuit? Explain any one. 5
- B What are the similarities between electric and magnetic circuit? Explain the difference between electric and magnetic circuit. 5
- C Explain with neat diagram Swinburne's test on DC machine. 5
- D Explain hysteresis and eddy current losses. How can these losses be reduced? 5
- E What is resolution and sensitivity of digital meters? 5

Q.2

- A Explain in brief the principle of electro-mechanical energy conversion and develop a model of electro-mechanical energy conversion device. 10
- B Draw and explain speed-torque characteristic of DC shunt motor and DC series motor. 10

Q.3

- A Explain Schering bridge with neat diagram. 10
- B Explain rheostatic braking and plugging of DC shunt motor. 10

Q.4

- A Explain the working principle, construction of moving coil instruments and hence derive the torque equation. 10
- B Explain Hall effect transducer. 10

Q.5

- A Explain the concept of singly excited machines and derive the expression for the electromagnetic torque. 10
- B Illustrate the working of ramp type digital voltmeter (DVM) with the help of block diagram and waveforms. 10

Q.6

- A Explain the static and dynamic characteristics of measuring instruments 10
- B Explain the construction and working principle of digital Tachometer. 10