

30/11/2024 ELECTRICAL SEM-III C SCHEME FEMM QP CODE: 10065501

(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 **20**
- A** Explain difference between series and parallel magnetic circuit. **5**
- B** What is RMF and how it is produced. **5**
- C** Explain regenerative braking in dc motor **5**
- D** Differentiate between active and passive transducers. Give examples of each. **5**
- E** Draw Kelvin's double bridge. **5**
- Q.2A** Explain the concept of doubly excited system and derive the expression for the electromagnetic torque. **10**
- B** What is Armature reaction? Explain with neat diagram. Derive formula for demagnetising and cross magnetising Ampere turns. **10**
- Q.3A** Explain working principle and construction of PMMC instruments. Also derive expression for deflecting and controlling torque. **10**
- B** Explain working and construction of DSO. **10**
- Q.4A** With neat diagram describe working of Thermistor, thermocouple and LVDT. **10**
- B** What are the similarities between electric and magnetic circuit? Explain the difference between electric and magnetic circuit. **10**
- Q.5A** Explain following terms i) Resolution ii) Sensitivity iii) Accuracy iv) Backlash v) Precision. **10**
- B** Explain in brief the principle of electro-mechanical energy conversion and develop a model of electro-mechanical energy conversion device. **10**
- Q.6A** Explain Maxwell's inductance bridge to measure self-inductance, derive the equation of self-inductance and draw phasor diagram. **10**
- B** Illustrate the working of ramp type digital voltmeter (DVM) with the help of block diagram and waveforms **10**
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