

Time: 3 Hours

Max. Marks: 80

- N.B. 1. Question no.1 is compulsory.
2. Attempt any three from the rest.
3. Make any suitable assumption wherever required.

- Q.1 Answer any four.
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| (a) | Explain both the laws of Faraday's magnetic induction and give one application of each. | 5M |
| (b) | Define following terms i)RMF ii)magnetic saturation and iii)Leakage Flux. | 5M |
| (c) | Why DC motor needs a starter and how many types of starter do you know for DC Machine? | 5M |
| (d) | Differentiate between thermocouple and thermistor. | 5M |
| (e) | Write difference between Resolution & sensitivity of digital meters | 5M |
- Q.2 (a) Explain the concept of singly excited machines and derive the expression for the electromagnetic torque. 10M
- (b) What is the armature reaction in DC machine? Explain with neat diagram and methods to overcome armature reaction. Derive expressions for ATd and ATc. 10M
- Q.3 (a) Explain construction & working of PMMC instrument and derive the torque equation. 10M
- (b) Explain the term Transducer. How will you classify the transducers? Explain Piezo electric transducer. 10M
- Q.4 (a) Explain calibration of ammeter and voltmeter using potentiometer. 10M
- (b) Write about working of Digital Storage Oscilloscope and Digital Techo Meter. 10M
- Q.5 (a) Explain working principles of digital Voltmeter, Ammeter 10M
- (b) What are different methods for speed control of DC motor explain Field flux control in detail with diagram and characteristics. 10M
- Q.6 Write a short note on any two
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| (a) | Hopkinson's test on DC Machine | 10M |
| (b) | Energy and co energy stored in magnetic field. | 10M |
| (c) | Instrument transformers | 10M |
