

Code No: R05010501**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD****B.Tech I Year Examinations, June - 2014****BASIC ELECTRICAL ENGINEERING****(Common to CSE, IT)****Time: 3 hours****Max. Marks: 80**

Answer any five questions
All questions carry equal marks

- 1.a) With a neat sketch explain in detail moving iron attraction type instrument.
b) Explain the significance of controlling torque and damping torque relevant to the operation of indicating instruments.
- 2.a) Describe the constructional features of both squirrel cage induction motor and slip-ring induction motor. Discuss the merits of one over the other.
b) Describe with neat sketches the principle of operations of a three phase synchronous motor.
- 3.a) Draw the connection diagrams for the shunt, series and compound generators and discuss their load characteristics.
b) The armature of a 6 - pole generator has a wave winding containing 664 conductors. Calculate the generated e.m.f when flux per pole is 60 mWb and the speed is 250 rpm. Find the speed at which the armature must be driven to generate an e.m.f. of 550 V if the flux per pole is reduced to 58 mWb.
- 4.a) Explain the constructional details of a single-phase transformer with a neat sketch.
b) Discuss how will you perform O.C and S.C. tests on a single phase transformer in the laboratory?
- 5.a) Find the average value and rms value for full wave rectified alternating current.
b) For the below circuit shown in figure 1, determine total impedance, total current and phase angle.

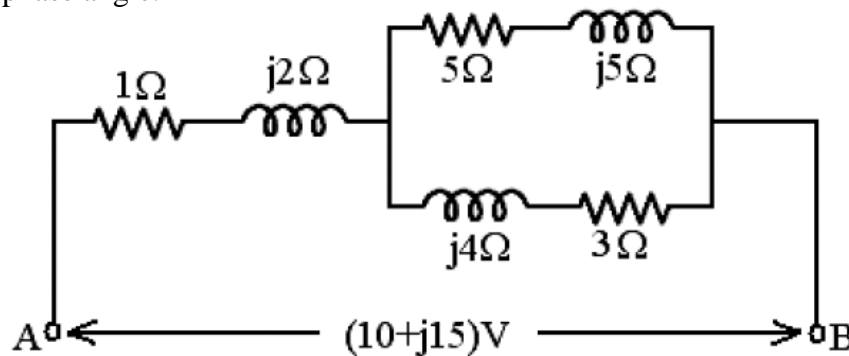


Figure: 1

- 6.a) What is a series magnetic circuit? Explain with figures.
b) What are the different types of induced EMF? Explain with neat diagrams.

- 7.a) State and explain Thevenin's theorem.
- b) For the circuit shown in below figure 2, use the superposition theorem to find i and power in all resistances.

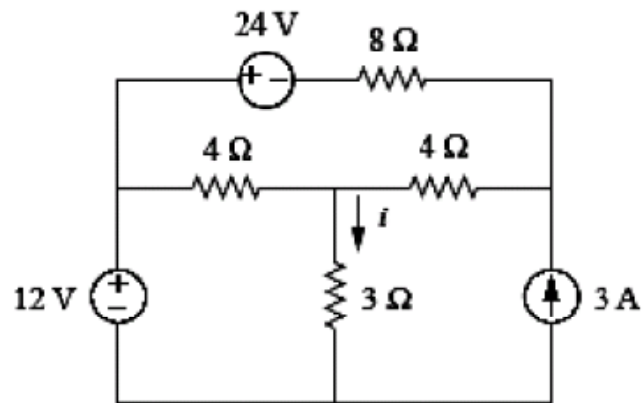


Figure: 2

- 8.a) Discuss Kirchhoff's laws with suitable examples.
- b) State and explain Faradays law of electromagnetic induction.
- c) Distinguish between Conductors, Semiconductors and Insulators.
