JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
II B.TECH II SEM–REGULAR/SUPPLEMENTARY EXAMINATIONS MAY - 2010
ELECTRICAL AND ELECTRONICS ENGINEERING
(AERONAUTICAL ENGINEERING)

Time: 3hours   Max.Marks:80
Answer any FIVE questions
All questions carry equal marks
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1.a) Determine the reactance of a 50 μF capacitor in a D.C supply and also in an A.C supply of 100Hz.
  b) When three inductances of values L_1, L_2 and L_3 Henries are connected in parallel, find its equivalent inductance. [8+8]

2.a) Explain the process of voltage build up in a DC shunt generator. What is critical field resistance?
  b) A 4-pole DC shunt generator with wave connected armature has 41 slots and 12 conductors per slot. The armature resistance is 0.5 ohms and the shunt field resistance as 200 ohms and flux per pole is 125 m webers. When the generator is driven at 1000 Rpm, calculate the voltage across 10 ohms resistance connected across the armature terminals. [8+8]

3.a) How can Iron losses be measured in a transformer?
  b) What is the cause of noise in transformers?
  c) What is all-day efficiency of transformer? How does it differ from ordinary efficiency? Explain with reasons. [6+5+5]

4.a) Compare between squirrel-cage and slip ring induction motors.
  b) A 3-phase induction motor with 6 poles runs at 970 rpm when connected to a 50 Hz supply, calculate:
  i)   The percentage slip
  ii)   Frequency of rotor current. [8+8]

5. A 230 V, 5-A meter on a full load test makes 61 revolutions in 37 seconds. If the normal disc speed is 520 revolutions /kWh, calculate the percentage error. [16]

6.a) Describe the action of PN junction diode under forward bias and reverse bias.
  b) Explain V-I characteristics of a PN junction diode. [8+8]

7.a) Explain why an SCR is operated only in the forward biased condition.
  b) Explain how triggering of an SCR can be controlled by the gate signal supplied. [8+8]

8.a) Why is magnetic deflection preferred over electrostatic deflection in the CRT used in television?
  b) Describe the working of a CRO with the help of block diagram. [8+8]

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