Code No: 07A3EC01 **R07** **Set No. 2**

II B.Tech I Semester Examinations,MAY 2011
ELECTRICAL AND ELECTRONICS ENGINEERING
Common to CE, ME, MECT, MEP, AME

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. A 11000/230 V, 150 KVA, 1- Phase, 50Hz transformer has core loss of 1.4 kW and full load copper loss of 1.6 kW. Determine:
   (a) KVA load for maximum efficiency and value of maximum efficiency at unity power factor.
   (b) The efficiency at half full load 0.8 power factor leading. [16]
2. What do you mean by synchronous reactance of an alternator. Explain the factors responsible for making terminal voltage of an alternator less than induced voltage. [16]
3. A 6-pole, 12 KW, 240 V, DC-machine is wave connected, if the same machine is lap connected, all other things remain same. Calculate its voltage, current and power ratings. [16]
4. (a) Explain the different methods of supporting the moving system in instruments.
   (b) Explain the advantages and disadvantages of different damping systems. [8+8]
5. (a) A current of 5A is reduced to 2A in 0.05 seconds in a coil of inductance 1.0H. Calculate the mean value of the EMF induced in the coil.
   (b) List the advantages and disadvantages of Inductances. With proofs. [8+8]
6. (a) How many types of focusing of electron beam possible in CRO? Name them.
   (b) The distance between the plates of a plane parallel capacitor is 1 cm. An electron starts at rest from the negative plate. If a direct voltage of 1000 volts is applied, how will it take the electron to reach the positive plate? [8+8]
7. (a) Explain the drift and diffusion currents for a semiconductor.State and explain Mass-action law.
   (b) Compute the conductivity of a silicon semiconductor which is doped with acceptor impurity to a density of 10^{22} atoms/m^3.
   Given that n = 1.4×10^{16} /m^3, μ_n = 0.145 m^2/V-s and μ_p - 0.05 m^2/V-s. [8+8]
8. (a) A sinusoidal voltage V_i = 200 sin 314ft is applied to an SCR whose forward break down voltage is 150 V. Determine the time during which SCR remains OFF.
   (b) What is the advantages of TRANSISTOR over SCR? [8+8]

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Code No: 07A3EC01 **R07** **Set No. 4**

II B.Tech I Semester Examinations,MAY 2011
ELECTRICAL AND ELECTRONICS ENGINEERING
Common to CE, ME, MECT, MEP, AME

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) A current of 5A is reduced to 2A in 0.05 seconds in a coil of inductance 1.0H. Calculate the mean value of the EMF induced in the coil.
   (b) List the advantages and disadvantages of Inductances. With proofs. [8+8]
2. (a) A sinusoidal voltage $V_i = 200 \sin 314ft$ is applied to an SCR whose forward break down voltage is 150 V. Determine the time during which SCR remains OFF.
   (b) What is the advantages of TRANSISTOR over SCR? [8+8]
3. (a) Explain the different methods of supporting the moving system in instruments.
   (b) Explain the advantages and disadvantages of different damping systems. [8+8]
4. A 11000/230 V, 150 KVA, 1- Phase, 50Hz transformer has core loss of 1.4 kW and full load copper loss of 1.6 kW. Determine:
   (a) KVA load for maximum efficiency and value of maximum efficiency at unity power factor.
   (b) The efficiency at half full load 0.8 power factor leading. [16]
5. What do you mean by synchronous reactance of an alternator. Explain the factors responsible for making terminal voltage of an alternator less than induced voltage. [16]
6. A 6-pole, 12 KW, 240 V, DC-machine is wave connected, if the same machine is lap connected, all other things remain same. Calculate its voltage, current and power ratings. [16]
7. (a) Explain the drift and diffusion currents for a semiconductor.State and explain Mass-action law.
   (b) Compute the conductivity of a silicon semiconductor which is doped with acceptor impurity to a density of 10^{22} atoms/m^3.
   Given that n = 1.4×10^{16} /m^3, μ_n = 0.145 m^2/V-s and μ_p - 0.05 m^2/V-s. [8+8]
8. (a) How many types of focusing of electron beam possible in CRO? Name them.
   (b) The distance between the plates of a plane parallel capacitor is 1 cm. An electron starts at rest from the negative plate. If a direct voltage of 1000 volts is applied, how will it take the electron to reach the positive plate? [8+8]

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Code No: 07A3EC01 **R07** **Set No. 1**

II B.Tech I Semester Examinations,MAY 2011
ELECTRICAL AND ELECTRONICS ENGINEERING
Common to CE, ME, MECT, MEP, AME

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain the drift and diffusion currents for a semiconductor.State and explain Mass-action law.
   (b) Compute the conductivity of a silicon semiconductor which is doped with acceptor impurity to a density of 10^{22} atoms/m^3.
   Given that n = 1.4 × 10^{16} /m^3, μ_n = 0.145 m^2/V-s and μ_p - 0.05 m^2/V-s. [8+8]

2. (a) A sinusoidal voltage V_i = 200 sin 314ft is applied to an SCR whose forward break down voltage is 150 V. Determine the time during which SCR remains OFF.
   (b) What is the advantages of TRANSISTOR over SCR? [8+8]

3. What do you mean by synchronous reactance of an alternator. Explain the factors responsible for making terminal voltage of an alternator less than induced voltage. [16]

4. A 11000/230 V, 150 KVA, 1- Phase, 50Hz transformer has core loss of 1.4 kW and full load copper loss of 1.6 kW. Determine:
   (a) KVA load for maximum efficiency and value of maximum efficiency at unity power factor.
   (b) The efficiency at half full load 0.8 power factor leading. [16]

5. (a) A current of 5A is reduced to 2A in 0.05 seconds in a coil of inductance 1.0H. Calculate the mean value of the EMF induced in the coil.
   (b) List the advantages and disadvantages of Inductances. With proofs. [8+8]

6. (a) How many types of focusing of electron beam possible in CRO? Name them.
   (b) The distance between the plates of a plane parallel capacitor is 1 cm. An electron starts at rest from the negative plate. If a direct voltage of 1000 volts is applied, how will it take the electron to reach the positive plate? [8+8]

7. (a) Explain the different methods of supporting the moving system in instruments.
   (b) Explain the advantages and disadvantages of different damping systems. [8+8]

8. A 6-pole, 12 KW, 240 V, DC-machine is wave connected, if the same machine is lap connected, all other things remain same. Calculate its voltage, current and power ratings. [16]

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Code No: 07A3EC01 **R07** **Set No. 3**

II B.Tech I Semester Examinations,MAY 2011
ELECTRICAL AND ELECTRONICS ENGINEERING
Common to CE, ME, MECT, MEP, AME

Time: 3 hours **Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) A sinusoidal voltage $V_i = 200 \sin 314ft$ is applied to an SCR whose forward break down voltage is 150 V. Determine the time during which SCR remains OFF.
   (b) What is the advantages of TRANSISTOR over SCR? [8+8]
2. A 11000/230 V, 150 KVA, 1- Phase, 50Hz transformer has core loss of 1.4 kW and full load copper loss of 1.6 kW. Determine:
   (a) KVA load for maximum efficiency and value of maximum efficiency at unity power factor.
   (b) The efficiency at half full load 0.8 power factor leading. [16]
3. A 6-pole, 12 KW, 240 V, DC-machine is wave connected, if the same machine is lap connected, all other things remain same. Calculate its voltage, current and power ratings. [16]
4. (a) Explain the drift and diffusion currents for a semiconductor.State and explain Mass-action law.
   (b) Compute the conductivity of a silicon semiconductor which is doped with acceptor impurity to a density of 10^{22} atoms/m^3.
   Given that n = 1.4×10^{16} /m^3, μ_n = 0.145 m^2/V-s and μ_p - 0.05 m^2/V-s. [8+8]
5. What do you mean by synchronous reactance of an alternator. Explain the factors responsible for making terminal voltage of an alternator less than induced voltage. [16]
6. (a) A current of 5A is reduced to 2A in 0.05 seconds in a coil of inductance 1.0H. Calculate the mean value of the EMF induced in the coil.
   (b) List the advantages and disadvantages of Inductances. With proofs. [8+8]
7. (a) How many types of focusing of electron beam possible in CRO? Name them.
   (b) The distance between the plates of a plane parallel capacitor is 1 cm. An electron starts at rest from the negative plate. If a direct voltage of 1000 volts is applied, how will it take the electron to reach the positive plate? [8+8]
8. (a) Explain the different methods of supporting the moving system in instruments.
   (b) Explain the advantages and disadvantages of different damping systems. [8+8]

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