Code No: R05222104 **R05** **Set No. 2**

II B.Tech II Semester Examinations,April/May 2012
ELECTRICAL AND ELECTRONICS ENGINEERING
Aeronautical Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What is the temperature coefficient of resistance? Obtain the expression for same.
   (b) A copper wire is having a resistance of 1.657 Ohms at 30^0 C. What will be value of resistance wire at 70^0C, if temp coefficient of resistance is 0.0426. [8+8]

2. (a) What are the applications of CRO?
   (b) Explain the measurement of phase angle between two alternating voltages with the help of a neat sketch.
   (c) Draw the lissajous figures if [4+6+6]
      i. f_H / f_V = 2/4
      ii. f_H / f_V = 3/2.

3. (a) Explain various losses taking place in IM.
   (b) A 4-pole, 3-Φ, 50 Hz, IM supplies a useful torque of 160 Nm at 5 % slip. Calculate: rotor input, motor input, efficiency if friction & windage losses are 500 W and stator losses are 1000 W. [6+10]

4. (a) What is transistor biasing? Explain.
   (b) What is operating point? What is the importance of it? [8+8]

5. (a) What are the various losses taking place in the transformer? Explain them.
   (b) A 40 kVA single phase step down transformer has a full load secondary current of 200 A and the total resistance referred to secondary is 0.08 Ω. Find the efficiency of the transformer at full load and 0.8 pf lagging, if iron losses of transformer are 190 W. [6+10]

6. (a) Explain why speed of DC shunt motor decreases as load increases? What are the suitable measures to over come it?
   (b) A 250 V DC shunt motor takes a line current of 20 A. Resistance of shunt field winding is 200 Ω and that of armature is 0.3 Ω. Find the armature current and the back EMF. [6+10]

7. (a) Derive the expression for efficiency of a full-wave rectifier.
   (b) A FWR is using two diodes, the internal resistance of diode is 20Ω. The transformer rms secondary voltage from center-tap to each end of secondary is 50V and load resistance is 1k Ω, Find [8+8]

i. I_{dc} and

ii. I_{rms}

8. (a) List the different types of instruments used for making voltmeters and ammeters.

   (b) Prove that deflection in a Permanent Magnet Moving Coil Instrument is directly proportional to operating current. [6+10]

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Code No: R05222104 **R05** **Set No. 4**

II B.Tech II Semester Examinations,April/May 2012
ELECTRICAL AND ELECTRONICS ENGINEERING
Aeronautical Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the applications of CRO?
   (b) Explain the measurement of phase angle between two alternating voltages with the help of a neat sketch.
   (c) Draw the lissajous figures if [4+6+6]
      i. f_H / f_V = 2/4
      ii. f_H / f_V = 3/2.
2. (a) List the different types of instruments used for making voltmeters and ammeters.
   (b) Prove that deflection in a Permanent Magnet Moving Coil Instrument is directly proportional to operating current. [6+10]
3. (a) Explain why speed of DC shunt motor decreases as load increases? What are the suitable measures to over come it?
   (b) A 250 V DC shunt motor takes a line current of 20 A. Resistance of shunt field winding is 200 Ω and that of armature is 0.3 Ω. Find the armature current and the back EMF. [6+10]
4. (a) What is transistor biasing? Explain.
   (b) What is operating point? What is the importance of it? [8+8]
5. (a) Derive the expression for efficiency of a full-wave rectifier.
   (b) A FWR is using two diodes, the internal resistance of diode is 20Ω. The transformer rms secondary voltage from center-tap to each end of secondary is 50V and load resistance is 1k Ω, Find [8+8]
      i. I_{dc} and
      ii. I_{rms}
6. (a) Explain various losses taking place in IM.
   (b) A 4-pole, 3-Φ, 50 Hz, IM supplies a useful torque of 160 Nm at 5 % slip. Calculate: rotor input, motor input, efficiency if friction & windage losses are 500 W and stator losses are 1000 W. [6+10]
7. (a) What is the temperature coefficient of resistance? Obtain the expression for same.

(b) A copper wire is having a resistance of 1.657 Ohms at 30^0 C. What will be value of resistance wire at 70^0C, if temp coefficient of resistance is 0.0426. [8+8]

8. (a) What are the various losses taking place in the transformer? Explain them.

(b) A 40 kVA single phase step down transformer has a full load secondary current of 200 A and the total resistance referred to secondary is 0.08 Ω. Find the efficiency of the transformer at full load and 0.8 pf lagging, if iron losses of transformer are 190 W. [6+10]

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Code No: R05222104 **R05** **Set No. 1**

II B.Tech II Semester Examinations,April/May 2012
ELECTRICAL AND ELECTRONICS ENGINEERING
Aeronautical Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Derive the expression for efficiency of a full-wave rectifier.
   (b) A FWR is using two diodes, the internal resistance of diode is 20Ω. The transformer rms secondary voltage from center-tap to each end of secondary is 50V and load resistance is 1k Ω, Find [8+8]
      i. I_{dc} and
      ii. I_{rms}
2. (a) What is the temperature coefficient of resistance? Obtain the expression for same.
   (b) A copper wire is having a resistance of 1.657ohms at 30^0 C. What will be value of resistance wire at 70^0C, if temp coefficient of resistance is 0.0426. [8+8]
3. (a) What is transistor biasing? Explain.
   (b) What is operating point? What is the importance of it? [8+8]
4. (a) List the different types of instruments used for making voltmeters and ammeters.
   (b) Prove that deflection in a Permanent Magnet Moving Coil Instrument is directly proportional to operating current. [6+10]
5. (a) What are the various losses taking place in the transformer? Explain them.
   (b) A 40 kVA single phase step down transformer has a full load secondary current of 200 A and the total resistance referred to secondary is 0.08 Ω. Find the efficiency of the transformer at full load and 0.8 pf lagging, if iron losses of transformer are 190 W. [6+10]
6. (a) What are the applications of CRO?
   (b) Explain the measurement of phase angle between two alternating voltages with the help of a neat sketch.
   (c) Draw the lissajous figures if [4+6+6]
      i. f_H / $f_V = 2/4$
      ii. f_H / $f_V = 3/2$.
7. (a) Explain various losses taking place in IM.
   (b) A 4-pole, 3-Φ, 50 Hz, IM supplies a useful torque of 160 Nm at 5 % slip. Calculate: rotor input, motor input, efficiency if friction & windage losses are 500 W and stator losses are 1000 W. [6+10]

8. (a) Explain why speed of DC shunt motor decreases as load increases? What are the suitable measures to over come it?

   (b) A 250 V DC shunt motor takes a line current of 20 A. Resistance of shunt field winding is 200 Ω and that of armature is 0.3 Ω. Find the armature current and the back EMF. [6+10]

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Code No: R05222104 **R05** **Set No. 3**

II B.Tech II Semester Examinations,April/May 2012
ELECTRICAL AND ELECTRONICS ENGINEERING
Aeronautical Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the applications of CRO?
   (b) Explain the measurement of phase angle between two alternating voltages with the help of a neat sketch.
   (c) Draw the lissajous figures if [4+6+6]
      i. f_H / f_V = 2/4
      ii. f_H / f_V = 3/2.
2. (a) List the different types of instruments used for making voltmeters and ammeters.
   (b) Prove that deflection in a Permanent Magnet Moving Coil Instrument is directly proportional to operating current. [6+10]
3. (a) Explain why speed of DC shunt motor decreases as load increases? What are the suitable measures to over come it?
   (b) A 250 V DC shunt motor takes a line current of 20 A. Resistance of shunt field winding is 200 Ω and that of armature is 0.3 Ω. Find the armature current and the back EMF. [6+10]
4. (a) What are the various losses taking place in the transformer? Explain them.
   (b) A 40 kVA single phase step down transformer has a full load secondary current of 200 A and the total resistance referred to secondary is 0.08 Ω. Find the efficiency of the transformer at full load and 0.8 pf lagging, if iron losses of transformer are 190 W. [6+10]
5. (a) Derive the expression for efficiency of a full-wave rectifier.
   (b) A FWR is using two diodes, the internal resistance of diode is 20Ω. The transformer rms secondary voltage from center-tap to each end of secondary is 50V and load resistance is 1k Ω, Find [8+8]
      i. I_{dc} and
      ii. I_{rms}
6. (a) What is transistor biasing? Explain.
   (b) What is operating point? What is the importance of it? [8+8]
7. (a) Explain various losses taking place in IM.

(b) A 4-pole, 3-Φ, 50 Hz, IM supplies a useful torque of 160 Nm at 5 % slip. Calculate: rotor input, motor input, efficiency if friction & windage losses are 500 W and stator losses are 1000 W. [6+10]

8. (a) What is the temperature coefficient of resistance? Obtain the expression for same.

(b) A copper wire is having a resistance of 1.657 Ohms at 30 C. What will be value of resistance wire at 70^0C, if temp coefficient of resistance is 0.0426. [8+8]

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