Code No: R05212401    **R05**    **Set No. 2**

**II B.Tech I Semester Examinations,November 2010**
**ELECTRICAL AND ELECTRONICS ENGINEERING**
**Automobile Engineering**

Time: 3 hours      Max Marks: 80

**Answer any FIVE Questions**
**All Questions carry equal marks**
⋆ ⋆ ⋆ ⋆ ⋆

1. (a) With neat sketch explain the working of center tap full wave rectifier?

   (b) In center tap full wave rectifier, the maximum voltage across half of secondary winding is 50V and load resistance is 200 ohms. Find the average load voltage and PIV ? Assume the diodes to be ideal. [8+8]

2. (a) Discuss the classification of electrical measuring instruments employed for measurement of current.

   (b) Explain the significance of controlling torque and damping torque relevant to the Operation of indicating instruments? [6+10]

3. (a) Give the applications of self excited generators.

   (b) An 8 pole d.c. shunt generator with 778 wave connected armature conductors and running at 500 rpm supplies a load of 12.5Ω resistance at terminal voltage of 50V. The armature resistance is 0.24Ω and the field resistance is 250Ω. Find the armature current, the induced emf and the flux per pole. [6+10]

4. (a) Explain the constructional details of a Transformer with neat sketches.

   (b) The required voltage ratio in a single Phase Transformer is 5000 v/250 v. Supply frequency is 50 Hz. Find the number of turns in each winding if the flux is to be about 0.05 wb. [8+8]

5. (a) Explain why an induction motor cannot develop torque when running at Synchronous speed?

   (b) Explain clearly what you understand by slip-torque characteristics. Indicate the Normal operating region in the above characteristics? [8+8]

6. (a) How is the electron beam focused to a fine spot on the face of the cathode ray tube?

   (b) Why is an attenuator probe used for measurements with oscilloscope?

   (c) What is delayed sweep? Why it is used in oscilloscopes? [6+4+6]

7. (a) State and explain Kirchoff's laws.

   (b) Apply KCL and KVL to determine current through 1Ω resistor in the network shown in figure 7b. [6+10]
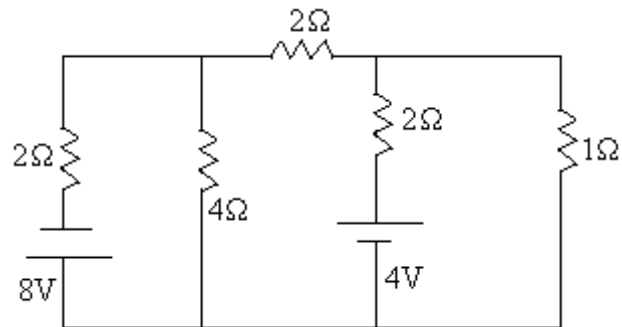
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Figure 7b

8. (a) The transistor has $I_{CBO} = 48$nA and $\alpha = 0.992$.

    i. Find $\beta$ and $I_{CEO}$?

    ii. Find its collector current when $I_B = 30$ $\mu$A ?

    iii. Find the approximate collector current neglecting leakage current?

  (b) Draw and explain the input and output characteristics of Common Base Configuration. [8+8]

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Code No: R05212401 | **R05** | **Set No. 4**

**II B.Tech I Semester Examinations,November 2010**
**ELECTRICAL AND ELECTRONICS ENGINEERING**
**Automobile Engineering**

Time: 3 hours | Max Marks: 80

**Answer any FIVE Questions**
**All Questions carry equal marks**
⋆ ⋆ ⋆ ⋆ ⋆

1. (a) Explain why an induction motor cannot develop torque when running at Synchronous speed?

   (b) Explain clearly what you understand by slip-torque characteristics. Indicate the Normal operating region in the above characteristics? [8+8]

2. (a) Explain the constructional details of a Transformer with neat sketches.

   (b) The required voltage ratio in a single Phase Transformer is 5000 v/250 v. Supply frequency is 50 Hz. Find the number of turns in each winding if the flux is to be about 0.05 wb. [8+8]

3. (a) Give the applications of self excited generators.

   (b) An 8 pole d.c. shunt generator with 778 wave connected armature conductors and running at 500 rpm supplies a load of $12.5\Omega$ resistance at terminal voltage of 50V. The armature resistance is $0.24\Omega$ and the field resistance is $250\Omega$. Find the armature current, the induced emf and the flux per pole. [6+10]

4. (a) How is the electron beam focused to a fine spot on the face of the cathode ray tube?

   (b) Why is an attenuator probe used for measurements with oscilloscope?

   (c) What is delayed sweep? Why it is used in oscilloscopes? [6+4+6]

5. (a) State and explain Kirchoff's laws.

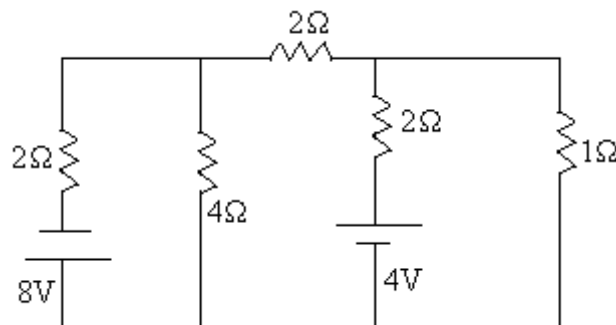   (b) Apply KCL and KVL to determine current through $1\Omega$ resistor in the network shown in figure 5b. [6+10]



Figure 5b

6. (a) With neat sketch explain the working of center tap full wave rectifier?

(b) In center tap full wave rectifier, the maximum voltage across half of secondary winding is 50V and load resistance is 200 ohms. Find the average load voltage and PIV ? Assume the diodes to be ideal. [8+8]

7. (a) The transistor has $I_{CBO} = 48$nA and $\alpha = 0.992$.

    i. Find $\beta$ and $I_{CEO}$?

    ii. Find its collector current when $I_B = 30 \ \mu$A ?

    iii. Find the approximate collector current neglecting leakage current?

(b) Draw and explain the input and output characteristics of Common Base Configuration. [8+8]

8. (a) Discuss the classification of electrical measuring instruments employed for measurement of current.

(b) Explain the significance of controlling torque and damping torque relevant to the Operation of indicating instruments? [6+10]

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Code No: R05212401 **R05** **Set No. 1**

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

**Answer any FIVE Questions**
**All Questions carry equal marks**
⋆ ⋆ ⋆ ⋆ ⋆

1. (a) State and explain Kirchoff's laws.

    (b) Apply KCL and KVL to determine current through $1\Omega$ resistor in the network shown in figure 1b. [6+10]
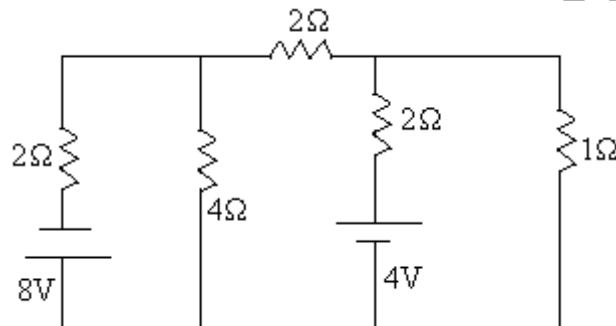


Figure 1b

2. (a) Explain the constructional details of a Transformer with neat sketches.

    (b) The required voltage ratio in a single Phase Transformer is 5000 v/250 v. Supply frequency is 50 Hz. Find the number of turns in each winding if the flux is to be about 0.05 wb. [8+8]

3. (a) With neat sketch explain the working of center tap full wave rectifier?

    (b) In center tap full wave rectifier, the maximum voltage across half of secondary winding is 50V and load resistance is 200 ohms. Find the average load voltage and PIV ? Assume the diodes to be ideal. [8+8]

4. (a) Give the applications of self excited generators.

    (b) An 8 pole d.c. shunt generator with 778 wave connected armature conductors and running at 500 rpm supplies a load of $12.5\Omega$ resistance at terminal voltage of 50V. The armature resistance is $0.24\Omega$ and the field resistance is $250\Omega$. Find the armature current, the induced emf and the flux per pole. [6+10]

5. (a) How is the electron beam focused to a fine spot on the face of the cathode ray tube?

    (b) Why is an attenuator probe used for measurements with oscilloscope?

    (c) What is delayed sweep? Why it is used in oscilloscopes? [6+4+6]

6. (a) The transistor has $I_{CBO} = 48$nA and $\alpha = 0.992$.

    i. Find $\beta$ and $I_{CEO}$?

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ii. Find its collector current when $I_B = 30 \ \mu A$ ?

iii. Find the approximate collector current neglecting leakage current?

(b) Draw and explain the input and output characteristics of Common Base Configuration. [8+8]

7. (a) Explain why an induction motor cannot develop torque when running at Synchronous speed?

(b) Explain clearly what you understand by slip-torque characteristics. Indicate the Normal operating region in the above characteristics? [8+8]

8. (a) Discuss the classification of electrical measuring instruments employed for measurement of current.

(b) Explain the significance of controlling torque and damping torque relevant to the Operation of indicating instruments? [6+10]

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Code No: R05212401 | **R05** | **Set No. 3**

**II B.Tech I Semester Examinations,November 2010**
**ELECTRICAL AND ELECTRONICS ENGINEERING**
**Automobile Engineering**

Time: 3 hours | Max Marks: 80

**Answer any FIVE Questions**
**All Questions carry equal marks**
⋆ ⋆ ⋆ ⋆ ⋆

1. (a) The transistor has $I_{CBO} = 48$nA and $\alpha = 0.992$.

   i. Find $\beta$ and $I_{CEO}$?
   ii. Find its collector current when $I_B = 30$ $\mu$A ?
   iii. Find the approximate collector current neglecting leakage current?

   (b) Draw and explain the input and output characteristics of Common Base Configuration. [8+8]

2. (a) State and explain Kirchoff's laws.

   (b) Apply KCL and KVL to determine current through $1\Omega$ resistor in the network shown in figure 2b. [6+10]



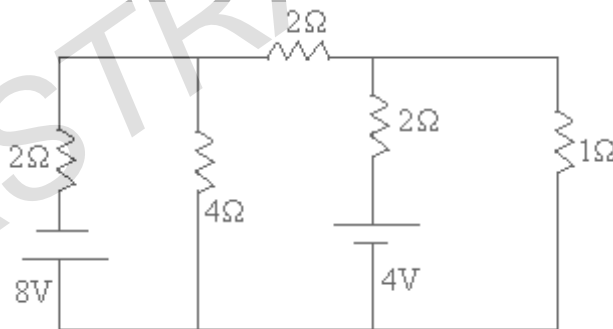Figure 2b

3. (a) Give the applications of self excited generators.

   (b) An 8 pole d.c. shunt generator with 778 wave connected armature conductors and running at 500 rpm supplies a load of $12.5\Omega$ resistance at terminal voltage of 50V. The armature resistance is $0.24\Omega$ and the field resistance is $250\Omega$. Find the armature current, the induced emf and the flux per pole. [6+10]

4. (a) Explain why an induction motor cannot develop torque when running at Synchronous speed?

   (b) Explain clearly what you understand by slip-torque characteristics. Indicate the Normal operating region in the above characteristics? [8+8]

5. (a) Explain the constructional details of a Transformer with neat sketches.

   (b) The required voltage ratio in a single Phase Transformer is 5000 v/250 v. Supply frequency is 50 Hz. Find the number of turns in each winding if the flux is to be about 0.05 wb. [8+8]

**R05**

**Set No. 3**

6. (a) How is the electron beam focused to a fine spot on the face of the cathode ray tube?

   (b) Why is an attenuator probe used for measurements with oscilloscope?

   (c) What is delayed sweep? Why it is used in oscilloscopes?          [6+4+6]

7. (a) With neat sketch explain the working of center tap full wave rectifier?

   (b) In center tap full wave rectifier, the maximum voltage across half of secondary winding is 50V and load resistance is 200 ohms. Find the average load voltage and PIV ? Assume the diodes to be ideal.          [8+8]

8. (a) Discuss the classification of electrical measuring instruments employed for measurement of current.

   (b) Explain the significance of controlling torque and damping torque relevant to the Operation of indicating instruments?          [6+10]

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