

Code No: 07A3EC01

**R07****Set No. 2**

**II B.Tech I Semester Examinations, November 2010**  
**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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- (a) Write equations showing the variation of reverse saturation current with temperature for Ge diode and Si diode.  
 (b) How does the diode voltage at constant current vary with temperature? [8+8]
- Find the equivalent resistance between terminals x-y for the resistive network shown in figure 5 below: [16]

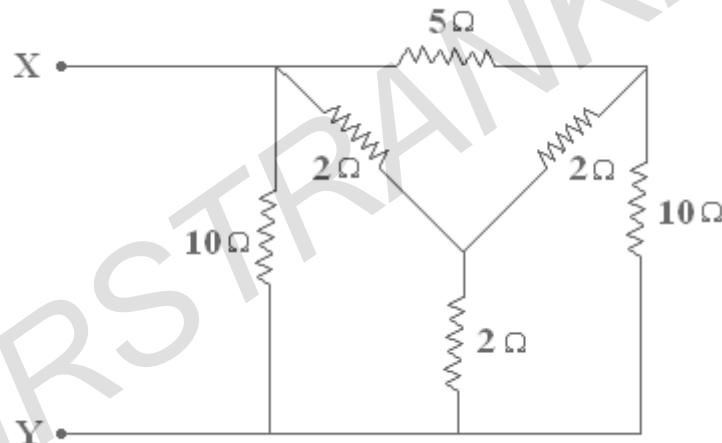


Figure 5

- (a) Derive the relationship between  $\alpha$  and  $\beta$ .  
 (b) Why does the CE Configuration provide large current amplification while the Configuration does not? [8+8]
- (a) List the advantages of gravity control over spring control.  
 (b) List the different types of materials used in components of spring and gravity control. [8+8]
- Give the construction of a Cathode Ray tube using electrostatic focusing and deflection systems and describe the functions of various constituents. [16]
- A 4-pole, 50Hz star-connected alternator has a flux per pole of 0.12 Wb. It has 4 slots per pole per phase, conductors per slot being 4. If the winding coil span is 1500, find the emf induced deriving all necessary factors. [16]
- A belt driven DC shunt generator runs at 1500 rpm delivering 10KW at 220 V brushes. The belt breaks, following which the machine operates as a motor drawing

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2KW power. What will be its speed as motor? The armature and field resistances are 0.25 ohms and 55ohms respectively. Ignore armature reaction and assume the contact drop at each brush to be 1 volt . [16]

8. (a) Explain how the losses in transformer vary with the load.
- (b) A single phase 2300/230 V, 50 Hz core type transformer has core section of  $0.05 \text{ m}^2$ . If the permissible maximum Flux density is  $1.1 \text{ wb/m}^2$ , calculate the number of turns on primary & secondary sides. [8+8]

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FIRSTRANKER

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**R07****Set No. 4**

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ELECTRICAL AND ELECTRONICS ENGINEERING  
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Time: 3 hours

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Answer any FIVE Questions  
All Questions carry equal marks

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1. (a) Derive the relationship between  $\alpha$  and  $\beta$ .  
(b) Why does the CE Configuration provide large current amplification while the Configuration does not? [8+8]
2. A belt driven DC shunt generator runs at 1500 rpm delivering 10KW at 220 V brushes. The belt breaks, following which the machine operates as a motor drawing 2KW power. What will be its speed as motor? The armature and field resistances are 0.25 ohms and 55ohms respectively. Ignore armature reaction and assume the contact drop at each brush to be 1 volt . [16]
3. (a) Explain how the losses in transformer vary with the load.  
(b) A single phase 2300/230 V, 50 Hz core type transformer has core section of 0.05 m<sup>2</sup>. If the permissible maximum Flux density is 1.1wb/m<sup>2</sup>, calculate the number of turns on primary & secondary sides. [8+8]
4. (a) Write equations showing the variation of reverse saturation current with temperature for Ge diode and Si diode.  
(b) How does the diode voltage at constant current vary with temperature? [8+8]
5. Give the construction of a Cathode Ray tube using electrostatic focusing and deflection systems and describe the functions of various constituents. [16]
6. (a) List the advantages of gravity control over spring control.  
(b) List the different types of materials used in components of spring and gravity control. [8+8]
7. Find the equivalent resistance between terminals x-y for the resistive network shown figure 5 below: [16]

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Set No. 4

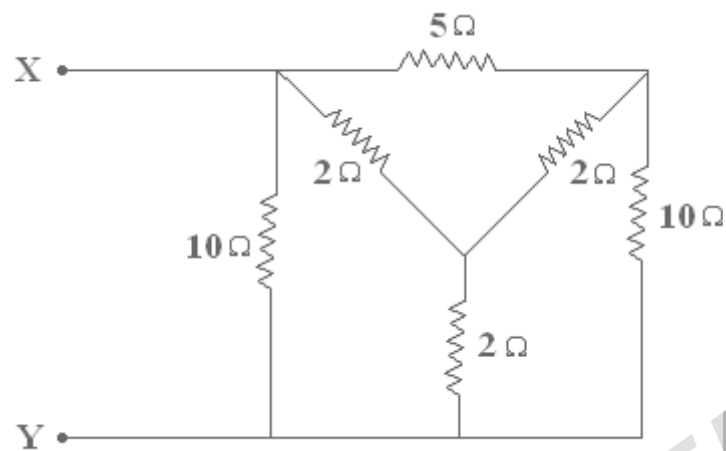


Figure 5

8. A 4-pole, 50Hz star-connected alternator has a flux per pole of 0.12 Wb. It has 4 slots per pole per phase, conductors per slot being 4. If the winding coil span is 1500, find the emf induced deriving all necessary factors. [16]

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Time: 3 hours

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Answer any FIVE Questions  
 All Questions carry equal marks

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- List the advantages of gravity control over spring control.
  - List the different types of materials used in components of spring and gravity control. [8+8]
- Find the equivalent resistance between terminals x-y for the resistive network shown figure 5 below: [16]

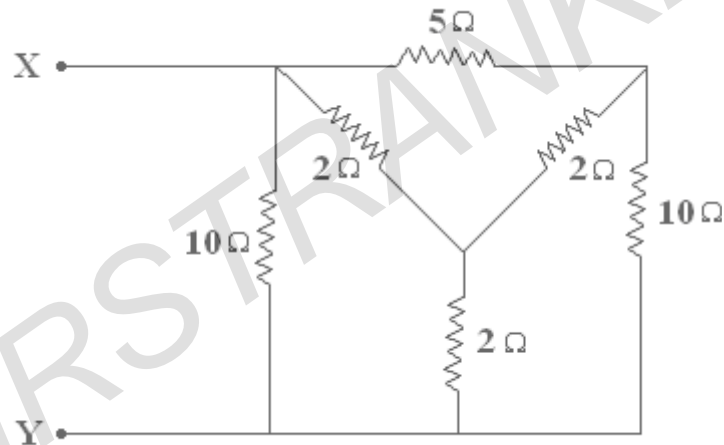


Figure 5

- Explain how the losses in transformer vary with the load.
  - A single phase 2300/230 V, 50 Hz core type transformer has core section of 0.05 m<sup>2</sup>. If the permissible maximum Flux density is 1.1wb/m<sup>2</sup>, calculate the number of turns on primary & secondary sides. [8+8]
- A belt driven DC shunt generator runs at 1500 rpm delivering 10KW at 220 V brushes. The belt breaks, following which the machine operates as a motor drawing 2KW power. What will be its speed as motor? The armature and field resistances are 0.25 ohms and 55ohms respectively. Ignore armature reaction and assume the contact drop at each brush to be 1 volt. [16]
- Give the construction of a Cathode Ray tube using electrostatic focusing and deflection systems and describe the functions of various constituents. [16]
- Write equations showing the variation of reverse saturation current with temperature for Ge diode and Si diode.
  - How does the diode voltage at constant current vary with temperature? [8+8]

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Set No. 1

7. A 4-pole, 50Hz star-connected alternator has a flux per pole of 0.12 Wb. It has 4 slots per pole per phase, conductors per slot being 4. If the winding coil span is 1500, find the emf induced deriving all necessary factors. [16]
8. (a) Derive the relationship between  $\alpha$  and  $\beta$ .  
(b) Why does the CE Configuration provide large current amplification while the Configuration does not? [8+8]

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**R07****Set No. 3**

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Time: 3 hours

Max Marks: 80

Answer any FIVE Questions  
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- Explain how the losses in transformer vary with the load.
  - A single phase 2300/230 V, 50 Hz core type transformer has core section of  $0.05 \text{ m}^2$ . If the permissible maximum Flux density is  $1.1 \text{ wb/m}^2$ , calculate the number of turns on primary & secondary sides. [8+8]
- Write equations showing the variation of reverse saturation current with temperature for Ge diode and Si diode.
  - How does the diode voltage at constant current vary with temperature? [8+8]
- List the advantages of gravity control over spring control.
  - List the different types of materials used in components of spring and gravity control. [8+8]
- Derive the relationship between  $\alpha$  and  $\beta$ .
  - Why does the CE Configuration provide large current amplification while the Configuration does not? [8+8]
- Find the equivalent resistance between terminals x-y for the resistive network shown figure 5 below: [16]

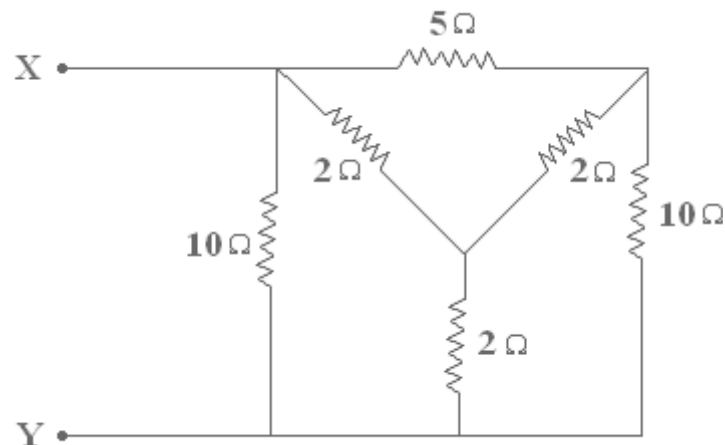


Figure 5

- A 4-pole, 50Hz star-connected alternator has a flux per pole of 0.12 Wb. It has 4 slots per pole per phase, conductors per slot being 4. If the winding coil span is 1500, find the emf induced deriving all necessary factors. [16]

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7. A belt driven DC shunt generator runs at 1500 rpm delivering 10KW at 220 V brushes. The belt breaks, following which the machine operates as a motor drawing 2KW power. What will be its speed as motor? The armature and field resistances are 0.25 ohms and 55ohms respectively. Ignore armature reaction and assume the contact drop at each brush to be 1 volt . [16]
8. Give the construction of a Cathode Ray tube using electrostatic focusing and deflection systems and describe the functions of various constituents. [16]

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