Code No: RR220204 **RR** **Set No. 2**

II B.Tech II Semester Examinations,December 2010
POWER SYSTEMS - I
Electrical And Electronics Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) A 3 phase 50km long single circuit 66Kv, 50 Hz transposed overhead line has horizontal spacing with 3 meters between adjacent conductors and 6 meters between outer conductor. The conductor diameter is 2 cm. Find the capacitive admittance and the chagrining current per phase when the line is energized at 66KV. [8]
   (b) Explain the method of images for finding the capacitance of transmission line with ground. [8]

2. State and explain the different nuclear reactors [16]

3. (a) Discuss the characteristics of hydro turbines. [6]
   (b) It has been estimated that a minimum run off of approximately $94m^3/s$ will be available at hydro-electric project with a head of 39 metres. Assuming the overall efficiency to be 65%, estimate the total rating of the generators and suggest the number and types of turbines to be installed. [10]

4. Derive an expression for the inductance per phase for a 3-phase overhead transmission line when [8+8=16]
   (a) Conductors are symmetrically placed
   (b) Conductors are unsymmetrically placed but the line is completely transposed.

5. A single phase line (ABC) of length 2.0 Km having resistance and reactance (go and return) as 0.06 and 0.1 ohms/Km. A is the feeding point, B is the mid point of the line taking a load of 100 A at 0.8 lead and C is the far end taking a load of 100A at Upf. The voltage at the 'C' is 220V. Find the voltage at the sending and the phase angle difference between the voltages of two ends. If [8+8=16]
   (a) Power factors of the loads are with reference to far end voltage
   (b) Power factors of the loads are with reference to the voltages at the load points.

6. (a) Define and explain the importance of the following terms in generations. [4x2=8]
      i. connected load,
      ii. maximum demand,
      iii. demand factor and
      iv. average load.

(b) Discuss the various methods of determining the depreciation of the equipment. [8]

7. (a) Explain Ring mains and list its advantages and disadvantages [8]
   (b) Draw and explain the sectionalized double bus bar system. [8]

8. Write notes on
   (a) Advantages and Disadvantages of thermal power station
   (b) Air preheater
   (c) Condenser
   (d) Cooling towers
   (e) Automatic Combustion control systems
   (f) Thermal power station control. [4+2+2+4+2+2=16]

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Code No: RR220204 **RR** **Set No. 4**

II B.Tech II Semester Examinations,December 2010
POWER SYSTEMS - I
Electrical And Electronics Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Derive an expression for the inductance per phase for a 3-phase overhead transmission line when [8+8=16]
   (a) Conductors are symmetrically placed
   (b) Conductors are unsymmetrically placed but the line is completely transposed.
2. (a) Explain Ring mains and list its advantages and disadvantages [8]
   (b) Draw and explain the sectionalized double bus bar system. [8]
3. State and explain the different nuclear reactors [16]
4. Write notes on
   (a) Advantages and Disadvantages of thermal power station
   (b) Air preheater
   (c) Condenser
   (d) Cooling towers
   (e) Automatic Combustion control systems
   (f) Thermal power station control. [4+2+2+4+2+2=16]
5. A single phase line (ABC) of length 2.0 Km having resistance and reactance (go and return) as 0.06 and 0.1 ohms/Km. A is the feeding point, B is the mid point of the line taking a load of 100 A at 0.8 lead and C is the far end taking a load of 100A at Upf. The voltage at the 'C' is 220V. Find the voltage at the sending and the phase angle difference between the voltages of two ends. If [8+8=16]
   (a) Power factors of the loads are with reference to far end voltage
   (b) Power factors of the loads are with reference to the voltages at the load points.
6. (a) A 3 phase 50km long single circuit 66Kv, 50 Hz transposed overhead line has horizontal spacing with 3 meters between adjacent conductors and 6 meters between outer conductor. The conductor diameter is 2 cm. Find the capacitive admittance and the chagrining current per phase when the line is energized at 66KV. [8]
   (b) Explain the method of images for finding the capacitance of transmission line with ground. [8]
7. (a) Discuss the characteristics of hydro turbines. [6]

(b) It has been estimated that a minimum run off of approximately $94m^3/s$ will be available at hydro-electric project with a head of 39 metres. Assuming the overall efficiency to be 65%, estimate the total rating of the generators and suggest the number and types of turbines to be installed. [10]

8. (a) Define and explain the importance of the following terms in generations. [4x2=8]

i. connected load,
ii. maximum demand,
iii. demand factor and
iv. average load.

(b) Discuss the various methods of determining the depreciation of the equipment. [8]

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Code No: RR220204 **RR** **Set No. 1**

II B.Tech II Semester Examinations,December 2010
POWER SYSTEMS - I
Electrical And Electronics Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Explain Ring mains and list its advantages and disadvantages [8]
   (b) Draw and explain the sectionalized double bus bar system. [8]
2. (a) Define and explain the importance of the following terms in generations. [4x2=8]
      i. connected load,
      ii. maximum demand,
      iii. demand factor and
      iv. average load.
   (b) Discuss the various methods of determining the depreciation of the equipment. [8]
3. (a) Discuss the characteristics of hydro turbines. [6]
   (b) It has been estimated that a minimum run off of approximately $94m^3/s$ will be available at hydro-electric project with a head of 39 metres. Assuming the overall efficiency to be 65%, estimate the total rating of the generators and suggest the number and types of turbines to be installed. [10]
4. (a) A 3 phase 50km long single circuit 66Kv, 50 Hz transposed overhead line has horizontal spacing with 3 meters between adjacent conductors and 6 meters between outer conductor. The conductor diameter is 2 cm. Find the capacitive admittance and the chagrining current per phase when the line is energized at 66KV. [8]
   (b) Explain the method of images for finding the capacitance of transmission line with ground. [8]
5. State and explain the different nuclear reactors [16]
6. Write notes on
   (a) Advantages and Disadvantages of thermal power station
   (b) Air preheater
   (c) Condenser
   (d) Cooling towers
   (e) Automatic Combustion control systems
   (f) Thermal power station control. [4+2+2+4+2+2=16]

7. Derive an expression for the inductance per phase for a 3-phase overhead transmission line when [8+8=16]

   (a) Conductors are symmetrically placed

   (b) Conductors are unsymmetrically placed but the line is completely transposed.

8. A single phase line (ABC) of length 2.0 Km having resistance and reactance (go and return) as 0.06 and 0.1 ohms/Km. A is the feeding point, B is the mid point of the line taking a load of 100 A at 0.8 lead and C is the far end taking a load of 100A at Upf. The voltage at the 'C' is 220V. Find the voltage at the sending and the phase angle difference between the voltages of two ends. If [8+8=16]

   (a) Power factors of the loads are with reference to far end voltage

   (b) Power factors of the loads are with reference to the voltages at the load points.

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Code No: RR220204 **RR** **Set No. 3**

II B.Tech II Semester Examinations,December 2010
POWER SYSTEMS - I
Electrical And Electronics Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) A 3 phase 50km long single circuit 66Kv, 50 Hz transposed overhead line has horizontal spacing with 3 meters between adjacent conductors and 6 meters between outer conductor. The conductor diameter is 2 cm. Find the capacitive admittance and the chagrining current per phase when the line is energized at 66KV. [8]
   (b) Explain the method of images for finding the capacitance of transmission line with ground. [8]

2. (a) Discuss the characteristics of hydro turbines. [6]
   (b) It has been estimated that a minimum run off of approximately $94m^3/s$ will be available at hydro-electric project with a head of 39 metres. Assuming the overall efficiency to be 65%, estimate the total rating of the generators and suggest the number and types of turbines to be installed. [10]

3. (a) Explain Ring mains and list its advantages and disadvantages [8]
   (b) Draw and explain the sectionalized double bus bar system. [8]

4. (a) Define and explain the importance of the following terms in generations. [4x2=8]
      i. connected load,
      ii. maximum demand,
      iii. demand factor and
      iv. average load.
   (b) Discuss the various methods of determining the depreciation of the equipment. [8]

5. State and explain the different nuclear reactors [16]

6. A single phase line (ABC) of length 2.0 Km having resistance and reactance (go and return) as 0.06 and 0.1 ohms/Km. A is the feeding point, B is the mid point of the line taking a load of 100 A at 0.8 lead and C is the far end taking a load of 100A at Upf. The voltage at the 'C' is 220V. Find the voltage at the sending and the phase angle difference between the voltages of two ends. If [8+8=16]
   (a) Power factors of the loads are with reference to far end voltage
   (b) Power factors of the loads are with reference to the voltages at the load points.

7. Write notes on

   (a) Advantages and Disadvantages of thermal power station

   (b) Air preheater

   (c) Condenser

   (d) Cooling towers

   (e) Automatic Combustion control systems

   (f) Thermal power station control. [4+2+2+4+2+2=16]

8. Derive an expression for the inductance per phase for a 3-phase overhead transmission line when [8+8=16]

   (a) Conductors are symmetrically placed

   (b) Conductors are unsymmetrically placed but the line is completely transposed.

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