Code No: 07A40201 **R07** **Set No. 2**

II B.Tech II Semester Examinations,April/May 2012
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 the method of voltage drop calculations in A,C distributor.
   (b) Draw the phasor diagrams of A.C. distributor with concentrated loads for power factors with respect to respective load points. [8+8]

2. (a) Draw a single line diagram of layout of an indoor substation.
   (b) Draw single line diagrams for various bus bar arrangements. [8+8]

3. (a) Explain with neat sketch the fast breeder reactor.
   (b) Write its advantages and disadvantages. [8+8]

4. A generating station has a maximum demand of 50,000 kW. Calculate the cost per unit generated from the following data;
   Capital cost = Rs. $95*10^6$;
   Annual load factor = 40%
   Annual cost of fuel and oil = Rs. $9*10^6$;
   Taxes, wages and salaries etc = Rs.$7.5*10^6$;
   Interest and depreciation = 12% [16]

5. (a) What are the advantages of 3-wire distribution over 2-wire distribution?
   (b) In a 3-phase, 4-wire distribution system with 240 volts between lines and neutral there is a balanced motor load of 250 kW at 0.8 power factor. Lamp loads connected between respective lines and neutral absorb 25, 75 and 100 kW. Calculate the current in each line and in the neutral wire of the feeder cable.
   Explain differences between AC and DC distribution. [16]

6. (a) What is necessity of Voltage control and power factor correction in power systems?
   (b) What are disadvantages of low voltage and low power factor of the system? [10+6]

7. (a) Mention the different sources of energy available in India.
   (b) Explain the merits and demerits of pulverized fuel firing of boilers. [8+8]

8. A central station is supplying energy to a community through two substations. Each substation feeds 4 feeders. The maximum daily recorded demands are:
   POWER STATION ..... 12,000 kW

Sub - station A	.....	6000 kW	Sub - station B	.....	9000 kW
Feeder 1	.....	1700 kW	Feeder 1	.....	2820 kW
Feeder 2	.....	1800 kW	Feeder 2	.....	1500 kW
Feeder 3	.....	2800 kW	Feeder 3	.....	4000 kW
Feeder 4	.....	600 kW	Feeder 4	.....	2900 kW

Calculate the diversity factor between

(a) sub - stations

(b) feeders on sub - station A and

(c) feeders on sub - station B. [6+5+5]

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Code No: 07A40201 **R07** **Set No. 4**

II B.Tech II Semester Examinations,April/May 2012
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) What is necessity of Voltage control and power factor correction in power systems?
   (b) What are disadvantages of low voltage and low power factor of the system? [10+6]

2. (a) What are the advantages of 3-wire distribution over 2-wire distribution?
   (b) In a 3-phase, 4-wire distribution system with 240 volts between lines and neutral there is a balanced motor load of 250 kW at 0.8 power factor. Lamp loads connected between respective lines and neutral absorb 25, 75 and 100 kW. Calculate the current in each line and in the neutral wire of the feeder cable.
   Explain differences between AC and DC distribution. [16]

3. (a) Mention the different sources of energy available in India.
   (b) Explain the merits and demerits of pulverized fuel firing of boilers. [8+8]

4. A central station is supplying energy to a community through two substations. Each substation feeds 4 feeders. The maximum daily recorded demands are:
   POWER STATION ..... 12,000 kW

Sub - station A	.....	6000 kW	Sub - station B	.....	9000 kW
Feeder 1	.....	1700 kW	Feeder 1	.....	2820 kW
Feeder 2	.....	1800 kW	Feeder 2	.....	1500 kW
Feeder 3	.....	2800 kW	Feeder 3	.....	4000 kW
Feeder 4	.....	600 kW	Feeder 4	.....	2900 kW

   Calculate the diversity factor between
   (a) sub - stations
   (b) feeders on sub - station A and
   (c) feeders on sub - station B. [6+5+5]

5. A generating station has a maximum demand of 50,000 kW. Calculate the cost per unit generated from the following data;
   Capital cost = Rs. $95*10^6$;
   Annual load factor = 40%
   Annual cost of fuel and oil = Rs. $9*10^6$;
   Taxes, wages and salaries etc = Rs.$7.5*10^6$;
   Interest and depreciation = 12% [16]

6. (a) Draw a single line diagram of layout of an indoor substation.
   (b) Draw single line diagrams for various bus bar arrangements. [8+8]

7. (a) Explain with neat sketch the fast breeder reactor.
   (b) Write its advantages and disadvantages. [8+8]

8. (a) Explain the method of voltage drop calculations in A,C distributor.
   (b) Draw the phasor diagrams of A.C. distributor with concentrated loads for power factors with respect to respective load points. [8+8]

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Code No: 07A40201 **R07** **Set No. 1**

II B.Tech II Semester Examinations,April/May 2012
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) Draw a single line diagram of layout of an indoor substation.
   (b) Draw single line diagrams for various bus bar arrangements. [8+8]

2. A central station is supplying energy to a community through two substations. Each substation feeds 4 feeders. The maximum daily recorded demands are:
   POWER STATION ..... 12,000 kW

Sub - station A	.....	6000 kW	Sub - station B	.....	9000 kW
Feeder 1	.....	1700 kW	Feeder 1	.....	2820 kW
Feeder 2	.....	1800 kW	Feeder 2	.....	1500 kW
Feeder 3	.....	2800 kW	Feeder 3	.....	4000 kW
Feeder 4	.....	600 kW	Feeder 4	.....	2900 kW

   Calculate the diversity factor between
   (a) sub - stations
   (b) feeders on sub - station A and
   (c) feeders on sub - station B. [6+5+5]

3. (a) What are the advantages of 3-wire distribution over 2-wire distribution?
   (b) In a 3-phase, 4-wire distribution system with 240 volts between lines and neutral there is a balanced motor load of 250 kW at 0.8 power factor. Lamp loads connected between respective lines and neutral absorb 25, 75 and 100 kW. Calculate the current in each line and in the neutral wire of the feeder cable.
   Explain differences between AC and DC distribution. [16]

4. (a) Explain the method of voltage drop calculations in A,C distributor.
   (b) Draw the phasor diagrams of A.C. distributor with concentrated loads for power factors with respect to respective load points. [8+8]

5. (a) Mention the different sources of energy available in India.
   (b) Explain the merits and demerits of pulverized fuel firing of boilers. [8+8]

6. (a) What is necessity of Voltage control and power factor correction in power systems?
   (b) What are disadvantages of low voltage and low power factor of the system? [10+6]

7. (a) Explain with neat sketch the fast breeder reactor.

(b) Write its advantages and disadvantages. [8+8]

8. A generating station has a maximum demand of 50,000 kW. Calculate the cost per unit generated from the following data;
Capital cost = Rs. $95*10^6$;
Annual load factor = 40%
Annual cost of fuel and oil = Rs. $9*10^6$;
Taxes, wages and salaries etc = Rs.$7.5*10^6$;
Interest and depreciation = 12% [16]

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Code No: 07A40201 **R07** **Set No. 3**

II B.Tech II Semester Examinations,April/May 2012
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) What is necessity of Voltage control and power factor correction in power systems?
   (b) What are disadvantages of low voltage and low power factor of the system? [10+6]

2. A generating station has a maximum demand of 50,000 kW. Calculate the cost per unit generated from the following data;
   Capital cost = Rs. $95*10^6$;
   Annual load factor = 40%
   Annual cost of fuel and oil = Rs. $9*10^6$;
   Taxes, wages and salaries etc = Rs.$7.5*10^6$;
   Interest and depreciation = 12% [16]

3. (a) Mention the different sources of energy available in India.
   (b) Explain the merits and demerits of pulverized fuel firing of boilers. [8+8]

4. (a) Explain with neat sketch the fast breeder reactor.
   (b) Write its advantages and disadvantages. [8+8]

5. (a) Draw a single line diagram of layout of an indoor substation.
   (b) Draw single line diagrams for various bus bar arrangements. [8+8]

6. A central station is supplying energy to a community through two substations. Each substation feeds 4 feeders. The maximum daily recorded demands are:
   POWER STATION ..... 12,000 kW

Sub - station A	.....	6000 kW	Sub - station B	.....	9000 kW
Feeder 1	.....	1700 kW	Feeder 1	.....	2820 kW
Feeder 2	.....	1800 kW	Feeder 2	.....	1500 kW
Feeder 3	.....	2800 kW	Feeder 3	.....	4000 kW
Feeder 4	.....	600 kW	Feeder 4	.....	2900 kW

   Calculate the diversity factor between
   (a) sub - stations
   (b) feeders on sub - station A and
   (c) feeders on sub - station B. [6+5+5]

7. (a) Explain the method of voltage drop calculations in A,C distributor.

(b) Draw the phasor diagrams of A.C. distributor with concentrated loads for power factors with respect to respective load points. [8+8]

8. (a) What are the advantages of 3-wire distribution over 2-wire distribution?

(b) In a 3-phase, 4-wire distribution system with 240 volts between lines and neutral there is a balanced motor load of 250 kW at 0.8 power factor. Lamp loads connected between respective lines and neutral absorb 25, 75 and 100 kW. Calculate the current in each line and in the neutral wire of the feeder cable.
Explain differences between AC and DC distribution. [16]

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