

ELECTRIC POWER GENERATION (For EE Only)

Written by Administrator

Friday, 06 November 2009 06:08 -

Sub Code

:

06EE36

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IA Marks

:

25

Hrs/ Week

:

04

□

Exam Hours

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:

03

Total Hrs.

:

52

:

Exam Marks

:

100

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PART – A

UNIT 1:

Sources of Electrical Power: Wind, solar, fuel, tidal, geo-thermal, hydro-electric, thermal, diesel, gas, nuclear power plants (block diagram approach only). Concept of co-generation. Combined heat and power distributed generation. — **6 Hours**
(20 Marks).

UNIT 2:

Diesel electric plants. Gas turbine plants. Mini, micro, and bio generation. Concept of distributed generation. — **6 Hours (20 Marks).**

UNIT 3:

(a) Hydro Power Generation: Selection of site. Classification of hydro-electric plants. General arrangement and operation. Hydroelectric plant power station structure and control. —

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4 Hours

(10 Marks).

(b) Thermal Power Generation: Introduction. Main parts of a thermal power plant. Working. Plant layout. — **3 Hours (10 Marks).**

UNIT 4:

Nuclear Power Station: Introduction. Adverse effects of fossil fuels. Pros and cons of nuclear power generation. Selection of site, cost, components of reactors. Description of fuel sources. Safety of nuclear power reactor. — **6 Hours (20 Marks).**

PART – B

UNIT 5:

Economics Aspects: Introduction. Terms commonly used in system operation. Diversity factor, load factor, plant capacity factor, plant use factor, plant utilization factor, loss factor, load duration curve. — **7 Hours (20 Marks).**

UNIT 6:

(a) Power factor improvement and tariffs. Energy-load curve. Interconnection of power stations.
— **3 Hours (10 Marks).**

(b) Substations: Introduction. Types. Bus bar arrangement. Schemes. Location. Substation equipment. Reactors and capacitors.— **4 Hours (10 Marks).**

UNIT 7:

(a) Current limiting reactors. Symmetric short circuit MVA calculations. – **3 Hours (10 Marks).**

(b) Grounding Systems: Introduction. Resistance grounding systems. Neutral grounding. Ungrounded system. – **3 Hours (10 Marks).**

UNIT 8:

Resonant grounding. Solid grounding, reactance grounding, resistance grounding. Earthing transformer. Neutral grounding transformer. **7 Hours (20 Marks).**

Text Books

1. **“Power System Engineering”**, A. Chakrabarti, M. L. Soni, and P.V. Gupta, Dhanpat Rai and Co., New Delhi.
2. **“Elements of Power System Design”**, M. V. Deshpande, A. H. Wheeler and Co.

References

1. **“Electric Power Generation, Transmission and Distribution”**, S. M. Singh, P.H.I., New Delhi.