GENERATION, TRANSMISSION & DISTRIBUTION (TH-04)

Date of Commencement of classes: 02.01.2024 Date of Closing of classes: 23.04.2024

CHAPTER-WISE DISTRIBUTION OF PERIODS

Sl. No.	Name of the Chapter	Periods as per Syllabus	Required period	Expected Marks
01	**Generation of electricity**	07	08	08
02	**Overhead lines**	07	06	14
03	**Transmission of electric power**	05	04	06
04	**Performance of short and medium lines**	07	07	14
05	**EHV Transmission line**	07	03	12
06	**Distribution systems**	07	10	10
07	**Underground Cables**	06	07	06
08	**Economic Aspects**	06	05	10
09	**Types of Tariff**	03	04	06
10	**Substations**	05	04	14
	TOTAL	60	58	100

Lesson Plan By- MADHUBRATA DASH

LESSON PLAN

Class day	Art. No.	Theory Topics
1st	1.1	**CHAPTER NO- 1(GENERATION OF ELECTRICITY)** Introduction, Elementary idea on generation of electricity from Thermal power plant
2nd		Continue …….
3rd		Hydroelectric power station
4th		Continue....
1st		Nuclear power station
2nd		Continue…
3rd	1.2	Introduction to solar power plant. (Photo voltaic cell).
4th	1.3	Draw Layout diagram of generating stations.
5th	3.1	**CHAPTER NO-03 (OVER HEAD LINES)** State types of supports, size and spacing of conductor.
6th	3.2	Types of conductor materials.
1st	3.3	State types of insulator and cross arms.
2nd	3.4	Derive for sag in overhead line with support at same level
3rd		Derive for sag in overhead line with support at different level
1st	3.5	Simple problem on sag
2nd	2.1	**CHAPTER NO -02 (TRANSMISSION OF ELECTRIC POWER)** Draw layout of transmission and distribution scheme
1st	2.2	Explain voltage Regulation & efficiency of transmission.
2nd	2.3	Kelvin's law for economical size of the conductor
3rd	2.4	Corona and corona loss on transmission lines.
4th	4.1	**CHAPTER NO -04 (PERFORMANCE OF SHORT & MEDIUM LINES)** Calculation of regulation and efficiency
5th		Numerical problem…..
1st		Numerical problem.....
2nd		Numerical problem.....
3rd		Numerical problem.....
4th		Numerical problem.....
		Numerical problem.....

2nd	5.1 5.1.1	**CHAPTER NO -05 (EHV TRANSMISSION)** Explain EHV AC transmission. Explain Reasons for adoption of EHV AC transmission
3rd	5.1.2	Problems involved in EHV AC transmission.
4th	5.2 5.2.1	HV DC transmission. Advantages and Limitations of HV DC transmission
1st	6.1	**CHAPTER-06 (DISTRIBUTION SYSTEMS)** Introduction of Distribution System.
2nd	6.2	Connection Schemes of Distribution System (Radial)
3rd	6.2	Introduction of Distribution System. Connection Schemes of Distribution System (Ring main & Inter connected)
4th	6.3	Explain DC distributions Distributor fed at one End Distributor fed at both the ends
5th		Numerical problem
6th		Numerical problem
1st		6.3.3 Ring distributors
2nd		Numerical problem
3rd	6.4 6.4.1	AC distribution system. Method of solving AC distribution problem
4th	6.4.2	Three phase four wire star connected system arrangement
5th	7.1	**CHAPTER NO-07 (UNDER GROUND CABLES)** Explain cable insulation and classification of cables.
1st	7.2	Types of L. T. cables with construction features
2nd	7.2	Types of H.T. cables with construction features
3rd	7.3	Methods of cable laying.
4th	7.4	Localization of cable faults – Murray loop test for short circuit fault/Earth fault.
1st		Localization of cable faults Varley loop test for short circuit fault/Earth fault.
2nd		Simple problems
3rd	8.1	**CHAPTER-08 (ECONOMIC ASPECTS)** Causes of low power factor.
4th	8.1	Methods of Improvement of power factor in power system.
1st		Cont.…
2nd	8.2	Factors affecting the economics of generation

	8.2.1 8.2.2 8.2.3 8.2.4	Define & explain Load curves. Define & explain Demand factor Define & explain Maximum demand. Define & explain Load factor.
3rd	8.2.5 8.2.6 8.3	Define & explain Diversity factor. Define & explain Plant capacity factor. Define & explain peak load and Base load on power station.
4th	9.1	**CHAPTER NO-09 (TYPES OF TARIFF)** Desirable characteristics of a tariff
5th	9.2	Explain flat rate, block rate, two part and
1st		maximum demand tariffs
2nd		Simple problems
1st	10.1	**CHAPTER NO -10 (SUBSTATION)** Layout of LT. HT Substation.
2nd		Layout of EHT substation.
3rd	10.2	Earthing of Substation, transmission, distribution lines
1st		Earthing of distribution lines
2nd		Chapter-1,2,3 Revision
3rd		Chapter-4,5,6 Revision
4th		Chapter-7,8 Revision
5th		Chapter-9,10 Revision
6th		Previous year question & answer discussion

Learning Resources:

Sl.No	Title of the Book	Name of Author	Publisher
1.	Principle of Electrical power	V. K. Mehta	S.Chand
2.	Power System Engineering	D. P. Kothari ,IJ Nagrath	TMH
3	A Text Book of Power system Engg	S. L. Uppal	Khanna Publisher
4	A course of electrical Power	Sony, Gupta, Bhat Nagar	Dhanpat Rai & Co