



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Fourth Semester, B.E. - Electrical and Electronics Engineering

Semester End Examination; Sep. / Oct. - 2023

Electrical Power Generation, Transmission and Distribution

Time: 3 hrs

Max. Marks: 100

Course Outcomes

The students will be able to:

CO1: Apply the knowledge of basic science in power generation, transmission & distribution systems.

CO2: Analyze the performance characteristics of transmission and distribution system.

CO3: Analyze the classification of line conductors and voltage distribution in insulators and UG cables.

CO4: Compute the parameters and performance of the transmission lines.

Note: I) PART - A is compulsory. **Two** marks for each question.

II) PART - B: Answer any **Two** sub questions (from a, b, c) for a Maximum of **18** marks from each unit.

Q. No.	Questions	Marks	BLs	COs	POs
I : PART - A		10			
1 a.	List the different types of Hydro Electric Power Plants.	2	L1	CO1	PO2
b.	Define Utilization Factor and Plant Use Factor.	2	L1	CO1	PO2
c.	List the types of DC systems.	2	L1	CO2	PO1
d.	Mention the various materials used to manufacture insulators.	2	L1	CO3	PO2
e.	List the methods of reducing the corona effect.	2	L1	CO4	PO2
II : PART - B		90			
UNIT - I		18			
2 a.	What are the various factors to be considered for the selection of site for a hydroelectric power plant? With the help of neat diagram, explain the construction and working of hydroelectric power plant.	9	L2	CO1	PO2
b.	With the help of a schematic layout, explain the function of thermal power station.	9	L2	CO1	PO2
c.	With a neat diagram, explain Pressurized Water Reactor (PWR) and Gas Cooled Reactor.	9	L2	CO1	PO1
UNIT - II		18			
3 a.	A generating station has a maximum demand of 500 MW. The annual load factor is 50% and plant capacity factor is 40%. Find the reserve capacity of the plant.	9	L3	CO2	PO2
b.	What is meant by power factor? Explain the various methods of improving it.	9	L2	CO2	PO1
c.	With a neat diagram, explain resistance grounding.	9	L2	CO3	PO1

UNIT - III**18**

- 4 a. Draw and explain the single diagram of a typical transmission and distribution system indicating the standard voltages. 9 L2 CO3 PO1
- b. Explain the types of AC systems. Also state the merits and demerits of AC system. 9 L2 CO3 PO2
- c. Derive expression for sag and tension when the supports are at equal level. 9 L2 CO3 PO2

UNIT - IV**18**

- 5 a. Give the list of various insulators and with the help of neat figure, explain pin type insulators. 9 L2 CO2 PO2
- b. Draw the cross sectional views of a single core cable and explain its construction. 9 L2 CO4 PO2
- c. Determine the sending end voltage and sending end current for medium transmission lines, assuming nominal T and π method. 9 L2 CO3 PO2

UNIT - V**18**

- 6 a. What is Corona? State the expression for disruptive and visual critical voltage. 9 L2 CO3 PO2
- b. Explain ring main distributor and write its advantages and disadvantages. 9 L2 CO2 PO2
- c. What is meant by DC distribution? With diagram, explain different types of DC distribution system. 9 L2 CO2 PO2

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