TED (21) -5032
(Revision- 2021)

2109230057

Reg.No……………….............
Signature. ....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE – APRIL - 2024

ELECTRICITY GENERATION, TRANSMISSION & DISTRIBUTION

[Maximum Marks : 75] [Time : 3 hours]

PART–A

I. Answer **all** the following questions in one word or sentence. Each question carries 1 mark.

(9x1=9 marks)

		Module Outcome	Cognitive level
1	List any two renewable energy sources.	M1.01	R
2	What is penstock?	M1.01	R
3	Diversity factor is equal to the ratio of………to……….	M2.01	R
4	Draw power triangle.	M2.02	R
5	The block rate tariff is mostly applicable to……..consumers.	M2.04	R
6	If the spacing between conductors is increased, then corona effect……………..	M3.03	R
7	Define sag in transmission lines.	M3.02	R
8	The main consideration in the design of feeder is…………..	M4.01	R
9	Define string efficiency.	M4.02	R

PART B

II. Answer **any Eight** questions from the following. Each question carries 3 marks.

(8x3=24 marks)

		Module Outcome	Cognitive level
1	Outline three criteria for selection of site for thermal power plant.	M1.02	U
2	List any six advantages of interconnected grid systems.	M1.04	R
3	What are the disadvantages of low power factor? Mention any three.	M2.03	R
4	Explain the terms (i) Load factor (ii) Load curve	M2.01	U
5	A generating station has a connected load of 43MW and a maximum demand of 20MW, the units generated being 61.5×10^6 per annum. Calculate (a) the demand factor and (b) load factor	M2.01	A
6	List any three properties of conductor in transmission lines.	M3.01	R
7	Define skin effect and write any two effects of skin effect.	M3.03	R
8	Write any six benefits of Flexible AC transmission system.	M3.04	R
9	What is grading of cables? What is the need of it?	M4.03	R
10	Draw the single diagram of interconnected distribution system.	M4.01	U

PART C

Answer **all** questions from the following. Each question carries 7 marks.

(6x7=42marks)

<table>
<tr><th></th><th></th><th>Module Outcome</th><th>Cognitive level</th></tr>
<tr><td>III</td><td>Draw and list the components of nuclear power plant.</td><td>M1.01</td><td>U</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>IV</td><td>Draw and explain the functions of components in hydroelectric power station.</td><td>M1.01</td><td>U</td></tr>
<tr><td>V</td><td>Explain synchronous condenser with phasor diagram. Mention two advantages and disadvantages of it in connection with powerfactor.</td><td>M2.03</td><td>U</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>VI</td><td>Compare two-part tariff and three-part tariff.</td><td>M2.04</td><td>U</td></tr>
<tr><td>VII</td><td>A consumer has a maximum demand of 200k W at 40% load factor. If the tariff is Rs.100 per k W of maximum demand plus 10 paise per kWh, find the overall cost per kWh.</td><td>M2.01</td><td>A</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>VIII</td><td>The daily demands of three consumers are given below.
<table>
<tr><th>Time</th><th>Consumer1</th><th>Consumer2</th><th>Consumer3</th></tr>
<tr><td>12 midnight to 8AM</td><td>No load</td><td>200W</td><td>No load</td></tr>
<tr><td>8AM TO 2PM</td><td>600W</td><td>No load</td><td>200W</td></tr>
<tr><td>2PM TO 4PM</td><td>200W</td><td>1000W</td><td>1200W</td></tr>
<tr><td>4PM TO 10PM</td><td>800W</td><td>No load</td><td>No load</td></tr>
<tr><td>10PM to midnight</td><td>No load</td><td>200W</td><td>200W</td></tr>
</table>
Plot the load curve and find (1) load factor of individual consumer.</td><td>M2.01</td><td>A</td></tr>
<tr><td>IX</td><td>Explain types of conductors used in overhead transmission.</td><td>M3.01</td><td>U</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>X</td><td>Explain transposition of conductors and its necessity.</td><td>M3.03</td><td>U</td></tr>
<tr><td>XI</td><td>Explain the distributors fed at both ends with schematic and write two advantages.</td><td>M4.01</td><td>U</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>XII</td><td>Explain the direct laying method of underground cable with neat sketch.</td><td>M4.03</td><td>U</td></tr>
<tr><td>XIII</td><td>Explain basic components of distribution system with neat sketch.</td><td>M4.01</td><td>U</td></tr>
<tr><td></td><td>OR</td><td></td><td></td></tr>
<tr><td>XIV</td><td>Illustrate single line diagram of a typical distribution substation.</td><td>M4.04</td><td>U</td></tr>
</table>

****