



ACE Engineering College

(An Autonomous Institution)

Question Paper Code:

EE405PC

ACE-R20

Semester End Examination
II B. Tech- II Semester- AUGUST/SEPTEMBER -2022
POWER SYSTEMS-I
ELECTRICAL AND ELECTRONICS ENGINEERING

Time: 3 Hours

Max. Marks: 70

H. T. No

Answer any 5 Questions out of 8 Questions from the following

Q.No	Question	Marks												
1. a)	Draw a neat schematic diagram of thermal power plant and explain its working principle.	7												
b)	Explain about renewable energy sources.	7												
2. a)	What are the advantages and disadvantages of solar energy?	7												
b)	Write short note on energy conservation.	7												
3. a)	Define and explain the significance of the following terms with illustrations. (i) Demand factor (ii) Load factor (iii) Diversity factor	7												
b)	The load on a power plant on a typical day is as under <table border="1" style="margin: 5px auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Time</th> <th style="width: 15%;">12-5 AM</th> <th style="width: 15%;">5-9 AM</th> <th style="width: 15%;">9-6 PM</th> <th style="width: 15%;">6-10 PM</th> <th style="width: 15%;">10-12 Mid Night</th> </tr> </thead> <tbody> <tr> <td>Load (MW)</td> <td style="text-align: center;">20</td> <td style="text-align: center;">40</td> <td style="text-align: center;">80</td> <td style="text-align: center;">100</td> <td style="text-align: center;">20</td> </tr> </tbody> </table> Plot the chronological load curve and load duration curve. Find the load factor of the plant and energy supplied by the plant in 24 hours.	Time	12-5 AM	5-9 AM	9-6 PM	6-10 PM	10-12 Mid Night	Load (MW)	20	40	80	100	20	7
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Load (MW)	20	40	80	100	20									
4. a)	Explain the different types of insulators.	7												
b)	Explain about different methods of grading of cables.	7												
5. a)	Derive the expression for capacitance of a single core cable.	7												
b)	With a neat diagram, explain the potential distribution over a string of suspension insulators.	7												
6.	Obtain the expression for capacitance of three phase transmission line with symmetrical and unsymmetrical spacing.	14												
7. a)	What is meant by corona loss. Explain the factors affecting corona.	7												
b)	Explain disruptive critical voltage.	7												
8. a)	With the help of neat sketches, explain different types of distribution systems.	10												
b)	What are the differences between overhead and underground distribution systems?	4												