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Code No. : 12328 N

VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS), HYDERABAD

Accredited by NAAC with A++ Grade

B.E. (E.E.E.) II-Semester Main Examinations, August-2023

Power Systems-I

Time: 3 hours

Max. Marks: 60

Note: Answer all questions from Part-A and any FIVE from Part-B

Part-A (10 × 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	Mention the materials used as control rods and shield in a nuclear reactor.	2	2	1	1
2.	What is the function of combustion chamber in gas turbine power plant?	2	1	1	1
3.	Draw the double basin system of tidal power generation.	2	2	2	1
4.	List the types of wind turbines.	2	2	2	1
5.	Define annual plant capacity factor.	2	1	3	1
6.	Define the terms interest and depreciation as applied to economics of power generation.	2	1	3	1
7.	Name the important components of an overhead transmission line.	2	2	4	1
8.	Why are suspension insulators preferred for high voltage power transmission?	2	2	4	1
9.	What is the function of surge tank in hydroelectric power plants?	2	1	1	1
10.	Draw the PV cell I-V characteristics.	2	2	2	1
Part-B (5 × 8 = 40 Marks)					
11. a)	What are the basic components of nuclear reactor? Explain the function of each component.	4	1	1	1
b)	Draw the schematic line diagram of gas turbine power plant. Also give applications of this type of power plant.	4	4	1	1
12. a)	Explain the operation of Ocean Thermal Energy Conversion (OTEC) in open loop with block diagram.	4	2	2	1
b)	Describe the wind energy conversion system with the help of block diagram.	4	2	2	1
13. a)	Describe different types of tariffs commonly used in practice	4	4	3	1
b)	The equipment in a power station costs Rs 15,50,000 and has a salvage value of Rs 60,000 at the end of 25 years. Determine the depreciated value of the equipment at the end of 20 years on the following methods. i) Diminishing value method ii) Sinking fund method at 5% compound interest annually.	4	3	3	1

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14. a)	Deduce an approximate expression for sag in overhead lines when (i) supports are at equal levels (ii) supports are at unequal levels	4	4	4	1
b)	Show that in a string of suspension insulators, the disc nearest to the conductor has the highest voltage across it.	4	4	4	1
15. a)	Explain the operation of Thermal Power Station with a neat line diagram.	4	2	1	1
b)	State any types of solar collectors with application.	4	4	2	1
16. a)	Define and explain the importance of the following terms in generation: i) connected load ii) demand factor iii) average load iv) Diversity factor	4	1	3	1
b)	Discuss the various conductor materials used for overhead lines. What are their relative advantages and disadvantages?	4	2	4	1
17.	Answer any <i>two</i> of the following:				
a)	State the factors governing the selection of site for hydro-electric power plant.	4	4	1	1
b)	Draw the schematic diagram of solar power plant and explain its operation.	4	4	2	1
c)	Discuss the objectives and requirements of tariff?	4	2	3	1

M : Marks; L: Bloom's Taxonomy Level; CO; Course Outcome; PO: Programme Outcome

i)	Blooms Taxonomy Level - 1	20%
ii)	Blooms Taxonomy Level - 2	40%
iii)	Blooms Taxonomy Level - 3 & 4	40%
