



B.E DEGREE EXAMINATIONS: NOV/DEC 2022

(Regulation 2018)

Seventh Semester

MECHANICAL ENGINEERING

U18MET7002: Power Plant Engineering

COURSE OUTCOMES

- CO1: Illustrate the various circuits in steam power plant and working principle of boilers.
 CO2: Discuss the working of combustion equipment's, condensers, and cooling towers.
 CO3: Summarize the various nuclear reactors and waste disposal methods.
 CO4: Outline the steps involved in site selection and working principle of hydroelectric power plants.
 CO5: Explain the working of renewable power plants.
 CO6: Estimate the power plant load factor and utilization factor.

Time: Three Hours

Maximum Marks: 100

Answer all the Questions: -

PART A (10 x 2 = 20 Marks)

(Answer not more than 40 words)

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| 1. Differentiate high pressure and super critical boilers. | CO1 | [K ₂] |
| 2. Infer the importance of super heaters used in steam power plants. | CO1 | [K ₁] |
| 3. Recall the various modern ash handling systems. | CO2 | [K ₁] |
| 4. Explain any two types of surface condensers. | CO2 | [K ₂] |
| 5. Define binding energy. | CO3 | [K ₁] |
| 6. List the site selection criterion of hydro power plant. | CO4 | [K ₁] |
| 7. Explain the importance of photovoltaic cell. | CO5 | [K ₂] |
| 8. Classify geothermal energy. | CO5 | [K ₂] |
| 9. List the major factors that decide the economics of power plants. | CO6 | [K ₁] |
| 10. Define "Diversity factor". | CO6 | [K ₁] |

Answer any FIVE Questions:-

PART B (5 x 16 = 80 Marks)

(Answer not more than 400 words)

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|---|----|-----|-------------------|
| 11. a) Explain CANDU (Canadian-Deuterium-Uranium) reactor with neat diagram also mention its merits and demerits. | 10 | CO3 | [K ₂] |
| b) Illustrate uranium enrichment? Describe any two methods of Uranium enrichment. | 6 | CO3 | [K ₂] |

12.	a)	Outline the energy losses in steam turbines.	6	CO1	[K ₂]
	b)	Summarize the analysis of pollution from thermal power plants. Suggest suitable methods for the control of pollutants?	10	CO1	[K ₂]
13.	a)	Infer nuclear waste disposal.	4	CO3	[K ₂]
	b)	Relate the essential elements of hydro power plant and explain with a neat sketch.	12	CO4	[K ₂]
14.	a)	Suggest the requirements of surface condensers	8	CO2	[K ₂]
	b)	Differentiate between forced draught and induced draught cooling tower.	8	CO2	[K ₂]
15.	a)	Explain the working of geo thermal power plant with neat sketch.	10	CO5	[K ₂]
	b)	Explain the spring tides and neap tides.	6	CO5	[K ₂]
16.	a)	Elucidate the objectives and requirements to tariff and general form of tariff.	8	CO6	[K ₂]
	b)	Explain briefly the various methods used to calculate the depreciation cost.	8	CO6	[K ₂]
