A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 99373

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Open elective

Civil Engineering

19UEE973 - SOLAR POWER PLANTS

(Common to CSE, ECE, MECH, ,IT , Chemical and biomedical Engineering branches)

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Surge tank is for the protection of..... CO1- U

   (a) Dam (b) Spillways (c) Penstock (d) Headworks

2. In regenerative cycle feed water is heated by..... CO1- U

   (a) Exhaust gas (b) Heaters

   (c) Draining steam from the turbine (d) All of the above

3. Binary'vapour cycles are used to CO2- U

   (a) increase the performance of the condenser

   (b) increase the efficiency of the plant

   (c) increase efficiency of the turbine

   (d) none of the above

4. Rankine cycle efficiency of a good steam power plant may be in the range of CO2- U

   (a) 15 to 20 percent (b) 35 to 45 percent

   (c) 70 to 80 percent (d) 90 to 95 percent

5. Flat plate collector absorbs..... CO3- U

   (a) Direct radiation only (b) Diffuse radiation only

   (c) Direct and diffuse both (d) All of the above

6. Reflecting mirrors used for exploiting solar energy are called..... CO3- U

(a) Mantle (b) Ponds (c) Diffusers (d) Heliostats

7. The output of solar cell is the order of CO4- U

(a) 1W (b) 5W (c) 10W (d) 20W

8. The efficiency of the solar cell is about CO4- U

(a) 25% (b) 15% (c) 40% (d) 60%

9. Load factor of a power station is generally CO5- U

(a) Equal to unity (b) Less than unity

(c) more than unity (d) Equal to zero diversity factor is always

10. In two part traffic, variation in load factor will affect CO5- U

(a) fixed charges (b) operating or running charges

(c) Both (A) and (B) (d) Either (A) or (B)

PART – B (5 x 2= 10 Marks)

11. List the various parts of reactor in Diesel Power Plant. CO1- U

12. Draw the PV and TS diagram of Rankine cycle. CO2- U

13. Categorize the different components of the hybrid solar system CO3- Ana

14. What are concentrating photovoltaics? CO4- U

15. Classify the different types of tariff in power plant? CO5- Ana

PART – C (5 x 16= 80 Marks)

16. (a) Draw a neat schematic diagram of a thermal power plant and explain the functions of various components. CO1-U (16)

Or

(b) Draw a neat schematic diagram of a hydro-electric plant and explain the functions of various components. CO1-U (16)

17. (a) Analyze the Rankine cycle needed for improving the efficiency of Solar power plant with a neat sketch CO2-U (16)

Or

(b) Explain the working of a binary vapor cycle with a neat sketch. CO2-U (16)

18. (a) Classify the various types of solar collector with a neat sketch. CO3-U (16)

Or

(b) Explain about Hybrid Solar Power System with a neat diagram. CO3-U (16)

19.	(a)	Illustrate the working of Solar Photovoltaic system with a neat diagram.	CO4-U	(16)
		Or		
	(b)	Explain in details about Stand Alone PV System with a neat sketch	CO4-U	(16)
20.	(a)	Define Tariff and Explain about different Types of Tariff in Solar power system.	CO5-U	(16)
		Or		
	(b)	Categorize the various methods to calculate Economy of the Power plant with a neat sketch.	CO5-U	(16)