A

Question Paper Code: 99373

B.E./B.Tech. DEGREE EXAMINATION, NOV 2022

Open elective

Civil Engineering

19UEE973 - SOLAR POWER PLANTS

(Common to CSE, ECE, MECH, ,IT , Chemical , Agriculture, biomedical , CSBS &Biotechnology Engineering branches)

(Regulation 2019)

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- R

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

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

    (a) Exhaust gas   (b) Heaters

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

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

    (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   CO2- R
    the range of

    (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- R

    (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- R

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

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

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

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

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

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

   (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-R

   (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   CO1- U   (16)
         explain the functions of various components.

                                   Or

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

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

                                   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)

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19. (a) Illustrate the working of Solar Photovoltaic system with a neat   CO4- U   (16)
        diagram.

                                        Or

    (b) Explain in details about Stand Alone PV System with a neat   CO4- U   (16)
        sketch

20. (a) Define Tariff and Explain about different Types of Tariff in Solar   CO5- U   (16)
        power system.

                                        Or

    (b) Categorize the various methods to calculate Economy of the   CO5- U   (16)
        Power plant with a neat sketch.

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