



- c) Transportation of electrical energy
- d) Converting the wind flow due to speeding cars into electricity on highways
- (viii) Concentrated solar powered systems defined as
- a) Systems that use only a small concentrated portion of sunlight
- b) Systems that generate solar power by using photovoltaics
- c) Systems that generate solar power by using mirrors and lenses to absorb concentrate a large area of sunlight onto an absorber
- d) Systems that generate solar power by using mirrors and lenses to concentrate a large area of sunlight onto a receiver
- (ix) Judge the demand for renewable sources of energy
- a) Because they emit greenhouse gases
- b) Because of low or zero carbon footprint
- c) Because of the decreasing global temperatures
- d) Because they are more efficient
- (x) The working of central receiver thermal power system associated with the steps are
- a) Sunlight → heliostats absorb solar flux → central receiver → turbine system → electricity
- b) Sunlight → heliostats reflect solar flux → central receiver → turbine system → electricity
- c) Heliostats reflect solar flux → sunlight → turbine system → central receiver → electricity
- d) Heliostats reflect solar flux → sunlight → central receiver → turbine system → electricity
- (xi) Choose the operating temperature of turbines in a central receiver thermal power system is
- a) 10 – 100 degree C
- b) 5000 degree C
- c) 500 – 800 degree C
- d) 200 – 500 degree C
- (xii) Line focus collector used in a distributed power system is named as
- a) Parabolic mirrors
- b) Convex mirrors
- c) Concave lenses
- d) Linear fresnel reflector
- (xiii) Predict the capacity of mini hydro power plant
- a) upto 100kW
- b) 101kW-1000kW
- c) 1001kW-2000kW
- d) 6000kW-10000kW
- (xiv) Kaplan turbine is named as
- a) axial flow turbine
- b) inward flow turbine
- c) tangential flow turbine
- d) mixed flow turbine
- (xv) Identify the name of the turbine has highest speed
- a) Pelton wheel turbine
- b) Francis turbine
- c) Impulse turbine
- d) Kaplan turbine

### Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe about concentrated solar power (CSP). (3)
3. Describe the construction of direct type wind turbine. (3)
4. Explain with diagram the use of surge tank. (3)
5. Describe in brief about Vertical Axis Wind Turbine or VAWT. (3)
6. Draw and explain the block diagram of wind-solar plant. (3)

OR

Calculate the amount of generated power in the wind generator.

(3)

### Group-C

(Long Answer Type Questions)

5 x 6=30

7. Explain the process of electricity generation by a molten salt solar tower power plant. (5)
8. Describe off grid solar system with block diagram. (5)
9. Discuss the working principle of Horizontal Axis Wind Turbine. (5)
10. Explain the working principle of Pyrheliometer. (5)
11. Explain IV characteristics of solar cell. (5)
  
12. Sketch and explain the updraft gasifier with explanation. (5)

**OR**

Explain the construction of the crossdraft gasifier. (5)

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