

Total No. of Questions : 8]

SEAT No. :

PD-4052

[Total No. of Pages : 2

[6402]-11

S.E.

ELECTRICAL ENGINEERING
Power Generation Technology
(2019 course) (Semester - III) (203141)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidate:

- 1) Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q-7 or Q-8
- 2) Figures to the right indicate full marks.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Assume suitable additional data, if necessary.
- 5) Use of non-programmable calculator is allowed.

- Q1)** a) Explain advantages and disadvantages of Hydroelectric power plant. [5]
- b) List the turbines used in hydroelectric power plant and describe the factors governing their choice. [5]
- c) With the help of simple diagram explain working of hydroelectric power plant. [8]

OR

- Q2)** a) Write down factors which affect the location of site of a hydropower station. [4]
- b) Write a short note on [6]
- i) Hydrograph
- ii) Pumped storage hydro power plant
- c) With neat diagram describe high head power plant. [8]

P.T.O.

- Q3)** a) Wind turbine with 10m dia. Rotor, assume air density as 1.293kg/m^3 and wind speed is 20m/s. What is expected power in watt? [4]
b) Differentiate between horizontal axis and vertical axis wind turbine. [6]
c) Explain yaw control and pitch control method used in wind energy system. [7]

OR

- Q4)** a) If wind speed is 30m/s and rotor diameter is 15m find power available in wind. assume air density as 1.293kg/m^3 . [4]
b) Explain how the wind pattern affects power generation in wind energy systems. [6]
c) Write a short note on generators used in Wind energy system. [7]
Q5) a) Differentiate between non concentric and concentric type collectors. [4]
b) Explain any two solar thermal applications with neat diagram. [6]
c) Explain the working of PV cell and Simplest Equivalent Circuit for a Photovoltaic Cell. [8]

OR

- Q6)** a) Why measurement of solar radiation is important? Which equipments are used for measurement? [4]
b) Explain impact of insolation and temperature on I-V curves of PV cells [6]
c) Explain any two solar collectors along with their applications. [8]
Q7) a) Write a short note on 'Ocean thermal Energy' [4]
b) Explain standalone, hybrid stand alone and grid connected renewable energy sources. [6]
c) Explain the process Biomass energy conversion. [7]

OR

- Q8)** a) What is a geothermal energy? How can it be used for power generation? [4]
b) Explain the process of municipal solid waste to energy conversion. [6]
c) Explain grid connected renewable systems and their requirements [7]

