

Total No. of Questions : 8]

SEAT No. :

P1497

[Total No. of Pages : 2

[6002]-125

S.E. (Electrical Engineering)
POWER GENERATION TECHNOLOGY
(2019 Pattern) (Semester-III) (203141)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 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) How are hydroelectric power plants classified? [5]
b) Explain the importance of hydrograph for the installation of hydroelectric power plant. [5]
c) Draw layout of hydroelectric power plant and explain functions of different components. [8]

OR

- Q2)** a) Discuss the various factors which affect the location of site of a hydro-power station. [5]
b) Compare between Kaplan turbine and francis turbine. [5]
c) Explain the phenomenon 'water hammer' in hydroelectric power station. State the procedure to overcome this problem. [8]

- Q3)** a) Compare vertical axis and horizontal axis wind turbine. [4]
b) Explain historical development of wind power. [6]
c) Derive the relation of power in wind and explain impact of tower height on power generation in wind energy system. [7]

OR

- Q4)** a) Write in brief advantages and disadvantages of wind energy. [4]
b) Explain any two speed control techniques used in wind turbine to extract maximum power. [6]
c) With neat diagram explain different components and their functions in horizontal axis wind turbine. [7]

P.T.O.

- Q5) a)** Explain the terms. [4]
i) Concentration ratio
ii) Cloudy index
b) Explain the methods of measurements of solar radiations. [6]
c) Explain the working of PV cell and simplest Equivalent Circuit for a photovoltaic Cell. [8]

OR

- Q6) a)** Explain the terms. [4]
i) Solar radiations
ii) Solar constant
b) Explain the impact of shading on PV systems I-V curve. [6]
c) With the help of diagram explain the main concept of solar thermal power plant? [8]
- Q7) a)** What is a grid connected renewable system, explain with neat sketch. [4]
b) Explain the process of municipal solid waste to energy conversion. [6]
c) Write a short note on [7]
i) Biomass energy
ii) Fuel cell energy

OR

- Q8) a)** Explain standalone renewable system with neat diagram. [4]
b) Describe the fuel cell. How they are used for energy storage requirement? [6]
c) Write a short note on. [7]
i) Geothermal energy
ii) Ocean energy

