

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

Course Code: CH361**Course Name: ENERGY ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) Explain renewable and non renewable sources of energy. (10)
- b) Discuss on hydroelectric power potential of India. (5)
- 2 a) Explain with neat sketch the working of thermal power plant. What are the merits and demerits of this plant? (10)
- b) Describe the classification of turbines used in hydel power plant. Explain anyone with a neat sketch. (5)
- 3 a) Discuss on Indian energy resources and energy consumption. (7)
- b) Explain with neat sketch an atmospheric pressure fluidized bed combustion boiler. (8)

PART B*Answer any two full questions, each carries 15 marks.*

- 4 a) List out and explain any three types of solar thermal collectors with neat sketch. (9)
- b) With neat sketch explain Darrieus type wind turbine. (6)
- 5 a) What are energy plantations? Explain. (4)
- b) Explain solar refrigeration system with neat diagram. (5)
- c) Differentiate on ocean wave energy and tidal energy conversion processes. (6)
- 6 a) With neat sketch explain closed cycle Ocean thermal energy conversion system. (9)
- b) Differentiate thermochemical and biochemical methods of biomass conversions. (6)

PART C*Answer any two full questions, each carries 20 marks.*

- 7 a) Explain an open cycle magneto hydro dynamic power generation system. (8)
- b) Explain phosphoric acid fuel cell and solid oxide fuel cell. (8)
- c) What are the main advantages and limitations of fuel cells? (4)
- 8 a) Discuss on the types and methodology of energy audit. (7)

- b) What are the methods for increasing energy efficiency in boilers? (7)
- c) What is cogeneration? (6)
- 9 a) Discuss on electrical energy conservation in petroleum industry. (7)
- b) What is pinch technology? (5)
- c) Describe on alkaline fuel cell with a neat diagram. What are its advantages and disadvantages? (8)
