

B.E./B.TECH. Degree Examination, December 2020

Semester - VI

CH16601 - ENERGY ENGINEERING

(Regulation 2016)

Time: Three hours

Maximum: 80 Marks

Answer **ALL** questions**PART A - (8 X 2 = 16 marks)**

1. 85 Wh = _____ Joules.
 - a) 108950 J
 - b) 306000 J
 - c) 120000 J
 - d) 58460 J
2. Pick out the conventional energy sources:
 - a) Solar
 - b) Fossil fuel
 - c) Wind
 - d) Nuclear
3. The major hazard in nuclear energy is _____ and _____ of spent or used fuel.
 - a) Storage and disposal
 - b) Consumption and storage
 - c) Nuclear reaction and usage
 - d) Fission and disposal
4. In biomethane the percentage of carbon-dioxide is
 - a) 55-60
 - b) 35-45
 - c) 30-40
 - d) 35-43
5. List the various final usable forms of energy for consumption.
6. Compare coal and nuclear fuel in terms of mass of fuel required per MWh of energy generation.
7. Differentiate between tidal power and ocean wave power technologies.
8. Mention the role of fermentation process in generation of biogas.

PART B - (4 X16 = 64 marks)

09. (a) (i) Enumerate the energy situation in developing countries, with special reference to India. (8)
- (ii) Write a short note on energy crisis and its causes. (8)
- (OR)**
- (b) Classify different forms of energy. Give a detailed account of present world scenario. (16)
10. (a) (i) Discuss the science and technology of electricity production from natural gas based thermal power plants. (10)
- (ii) Discuss the different types of co-generation of electrical power. (6)
- (OR)**
- (b) List the products of a typical fusion reactor? Explain the operation of a nuclear fission reactor with the possible failures that may occur due to improper operation of a fission reactor? (16)
11. (a) Give a detailed description about the technological features and application of solar thermal power and solar energy conversion (16)
- (OR)**
- (b) Explain with neat sketch the process of power production from
- (i) Wind energy (8)
- (ii) Hydro energy (8)
12. (a) Demonstrate the process of a biogas plant for producing methane by anaerobic process. (16)
- (OR)**
- (b) (i) Discuss thermochemical methods of biomass conversion. (10)
- (ii) Write about the significance of biogas plants in India's energy strategy. (6)