

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2289893

Roll No.

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B.TECH.

Regular Theory Examination (Odd Sem-VII), 2016-17

ENERGY TECHNOLOGY

Time : 3 Hours

Max. Marks : 100

Section - A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (10×2=20)

- a) Define Calorific value.
- b) Differentiate between coal and coke.
- c) What is carbonization of coal?
- d) What do you understand by flash point and fire point?
- e) Define wind energy.
- f) What do you mean by nuclear fuels?
- g) Define bio-mass and bio mass energy.
- h) What is the composition of natural gas?
- i) What is purpose of cracking process?
- j) What is petroleum crude?

Section - B

2. Attempt any five questions from this section.

(5×10=50)

- a) How can we get liquid fuels from coal? Explain fischer-Tropsch process of coal processing.
- b) Explain coal carbonization of coal. Giving composition of atypical tar, write what chemicals can be recovered and how.
- c) What is the scope of nuclear energy in India? Giving classification of reactors, their use in power production, explain the reprocessing of spent nuclear fuels.
- d) Explain the manufacture of Metallurgical coke by Hoffman method and the recovery of various products. Also discuss various characteristics of Metallurgical coke.
- e) Give the classification of coal. Explain giving composition, the different classes of coal that are available in India.
- f) Describe ADU and its products with a neat diagram.
- g) Describe the working of geo-thermal power plant with the help of neat sketch. Also discuss the limitations of Geo-thermal energy.
- h) How does the wind blow? Explain how we make use of wind energy for solving the shortage problem of energy supply.

Section - C

Note : Attempt any two questions from this section.
(2×15=30)

- 3.**
 - a) What is energy conservation? Give a plan to effect energy conservation in chemical plants.
 - b) Explain with example the way, waste heat recovery and concept of multiple effect are useful in saving energy.
- 4.**
 - a) Write down the advantages of gaseous fuels over solid and liquid fuels. Give the production of water gas and producer gas.
 - b) What is the difference between proximate analysis and ultimate analysis of coal?
- 5.**
 - a) Discuss advantages and limitations of Renewable Energy sources.
 - b) Describe the photovoltaic conversion of solar energy. Also discuss its application.