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

PAPER ID : 9267 Roll No. | | | | | | | | | | |

B. Tech.

(SEM. VI) EXAMINATION, 2006-07

ENERGY RESOURCES & UTILIZATION

Time : 3 Hours] *[Total Marks : 100*

Note : *Attempt **all** questions.*

1 Attempt any **four** parts of the following : **5×4=20**

(a) Classify the various sources of energy.

(b) With the help of a diagram, explain the working of a floating gas holder type biogas plant.

(c) Explain how wind energy can be used to generate electricity. What should be the minimum wind speed for the satisfactory working of a wind powered electric generator?

(d) What are the various technologies for the conversion of biomass into gaseous and liquid fuels?

(e) What are the laws of energy conservation?

(f) Why are fossil fuels classified as non-renewable sources of energy? What steps should be taken to conserve these sources?

2 Attempt any **four** parts of the following : **5×4=20**

(a) How can solar energy be used to generate electricity on a large scale in solar power plants?

(b) Discuss the important uses of solar energy.

(c) Discuss the ways in which solar energy can be stored as thermal energy and can be used later in nights in absence of sun.

(d) Explain the formation of three different layers in solar pond.

(e) Describe the construction and working of liquid flat plate collectors for the collection of solar energy.

(f) Differentiate between Batteries and Fuel Cells. Explain the construction and working of any fuel cell.

3 Attempt any **two** parts of the following : **10 × 2 = 20**

(a) What is the future of Nuclear Energy in India? Giving nuclear reactions, explain how can you produce power using nuclear raw materials.

(b) Where do we have sources of "Geothermal Energy" in India? How power can be produced using geothermal source?

(c) (i) What are MHD systems?

(ii) What is meant by cogeneration of fuel and power?

4 Attempt any **two** parts of the following : **10×2=20**

(a) What is coal carbonization? Differentiate between low-temperature and high-temperature coal carbonization.

(b) Describe the various techniques by which liquid fuels can be obtained from coal.

(c) What is SNG? How is SNG manufactured from coal?

5 Attempt any **two** parts of the following : **10×2=20**

(a) What is biodiesel? How is biodiesel manufactured?

(b) Giving the salient features of Bombay High and Assam crudes, explain what products can be derived from these crudes.

(c) (i) What are gas hydrates?

(ii) What are LNG, CNG, and PNG?
