

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE – RAIGAD - 402 103
End Semester Examination, May 2018**

Branch: B. Tech.

Semester: II

Subject with Subject Code: Energy and Environmental Engineering [CHE206] **Marks:** 60

Date: 25 / 05 / 2018

Time: 3 Hrs.

Instructions to the Students:

1. Each question carries 12 marks.
2. Attempt **ANY FIVE** questions of the following.
3. Illustrate your answers with neat sketches, diagram, etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

Q.1. Solve any Two of the following: (6×2=12)

(a) How the fuel and ash handling system of the steam based power plant works? Show it partly with a free hand sketch. What are the considerations to be taken in to account before installation of steam power plant?

(b) List the various component of the gas turbine based power plant. Explain how open cycle gas turbine power plant is different than closed cycle gas turbine power plant. State any four advantages of diesel engine power plants

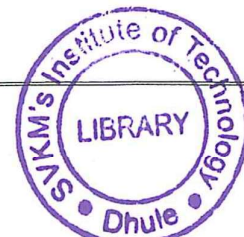
(c) Explain the nuclear fission phenomenon occurred in the nuclear reactor. Describe the working of indirect type nuclear power plant with a neat sketch. What the limitations of nuclear power generation. State any four.

Q.2. Solve any Two of the following: (6×2=12)

(a) How the fuel cells are classified? Explain the working principle of Proton Exchange Membrane type fuel cell? Draw a neat sketch of the above fuel cell.

(b) Describe the working of solar water heater with a neat sketch and label all the main component of the system. Name any two solar power plant installations in India.

(c) What is tidal power? Explain the working of tidal power plant with a neat sketch. State any four advantages as well as limitations of tidal power generation.



Q.3. Attempt the following:

(6×2=12)

(a) Explain the term “energy efficiency” in terms of various household equipment. What are the benefits derived from the energy efficient devices?

(b) What are the energy conservation opportunities available in industry? Briefly explain. How the energy is saved while using air conditioner and refrigerator?

Q.4. Attempt the following:

(6×2=12)

(a) Define Air Pollution. What are the indoor air pollutants? Explain the effects of indoor air pollution on the human health.

(b) Following are the sources of the soil pollution: Industrial waste, Urban waste, Agricultural practices, and Radioactive pollutants. Write the effect of the above on soil degradation. List the various farm and forestry practices that controls the soil pollution.

Q.5. Solve the following:

(6×2=12)

(a) Define sustainable development. List the various measures that may lead to sustainable development. Write any four benefits of rainwater harvesting as one of the measures of sustainable development.

(b) What is radioactive pollution? What are its effects? What are the measures to be taken to minimize the radiation pollution?

Q.6. Solve the following:

(6×2=12)

(a) What are the steps to be taken to preserve the tropical forest according to forest conservation act? Explain in brief.

(b) How the water pollution sources are classified? What are the effects of water pollution on human and animal health?

