

- (b) What do you mean by the term carbon foot print?
How it can be remediated?
- (c) Wind power is one of the most efficient and eco-friendly technology to produce energy. Discuss the challenges associated with it. (5,5,5)
6. (a) Discuss the role of alternative sources of energy in sustainable development.
- (b) Give an account of the various measures adopted to overcome global warming.
- (c) Describe briefly the working of a photovoltaic cell. (5,5,5)
7. (a) How can waste serve as a source of energy for the economic growth of a country?
- (b) What are the different sources of indoor pollution? Discuss various ways to remediate indoor pollution.
- (c) Differentiate between green, renewable, and clean energy. (5,5,5)
8. Write short notes on (any three): (5,5,5)
- (i) Zero carbon energy
- (ii) Hydropower
- (iii) Green house effect
- (iv) Sustainable energy

(1000)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 6058

H

Unique Paper Code : 2174001211

Name of the Paper : GE: ENERGY AND THE ENVIRONMENT

Name of the Course : B.Sc. (Hons) / B.Sc. (Prog)

Semester : II

Duration : 3 Hours

Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. This question paper consists of 8 questions in all.
3. Attempt any 6 questions.
4. All questions carry equal marks.

1. (a) Fill in the blanks (any five) :

(i) The energy stored in the dry cell is in the form of _____.

(ii) The best quality coal is _____.

(iii) Mechanical energy is the sum of potential energy and _____ energy.

P.T.O.

(iv) Excessive burning of fossil fuels is a major cause of _____.

(v) Flowing water has _____ energy.

(vi) A solar cell converts solar energy into _____ energy.

(b) Match the following :

(i) Photovoltaic cell	(I) CH ₄
(ii) Hydroelectric power	(II) Water Vapour
(iii) Engine	(III) Semiconductor
(iv) Natural gas	(IV) Heat energy to mechanical energy
(v) Green houses gas	(V) Rehabilitation

(c) Assign *True/False* to the following :

(i) A photovoltaic cell converts light energy into heat energy.

(ii) Carbon dioxide and methane are the two major components of greenhouse.

(iii) Energy flow in a food chain is unidirectional.

(iv) *Syn gas* is a mixture of carbon monoxide and hydrogen.

(v) Fuel cells can operate at higher efficiencies than combustion engines. (5,5,5)

2. (a) Illustrate and describe the H₂-O₂ fuel cell.
 (b) How can methanol serve as a storage energy molecule? Give the reactions involved.
 (c) Discuss carbon capture. In what all ways can it be used? (5,5,5)
3. (a) Discuss how chemical remediation can be used to reduce air pollution?
 (b) How chemical energy is converted to electrical energy? Discuss reactions involved.
 (c) Explain how biodiesel can be obtained by transesterification process. (5,5,5)
4. (a) Give the advantages and disadvantages of energy generated from fossil fuel (coal).
 (b) How can hydrogen be manufactured on a large scale? Discuss one of the methods in detail.
 (c) How can ocean tides be harnessed for the production of energy? (5,5,5)
5. (a) What is an energy storage system? Give its significance.