

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**MSc DEGREE EXAMINATION MAY 2018
(First Semester)**

Branch – **ENVIRONMENTAL SCIENCE**

ENERGY & ENVIRONMENT

Time : Three Hours

Maximum : 75 Marks

Answer **ALL** questions

ALL questions carry **EQUAL** marks (5 x 15 = 75)

- 1 a Describe the difference between Gibbs energy equation of state and Helmholtz energy equation of state. (15)
OR
- b Discuss the four reversible processes that make up the Carnot cycle. (10)
- c State any two energy unit conversion with examples. (5)
- 2 a What are the solar resources existing in India? (5)
- b Describe the solar-energy conversion and storage technologies. (10)
OR
- c What are the onshore and offshore wind energy resources in India? (5)
- d Explain the two different designs of wind turbines. (10)
- 3 a Explain the process of syngas production with neat sketch. (10)
- b How natural gas originated by thermogenic process? Explain. (5)
OR
- c What are the impacts of fossil fuels on air quality? Explain the various mitigation measures taken by the Government of India. (15)
- 4 a Distinguish between the nuclear fission and fusion reactions. (10)
- b Explain the classification of radioactive wastes. (5)
OR
- c Describe the various radioactive waste disposal methods with neat sketch. (15)
- 5 a Demonstrate the energy production from lignocellulosic energy crops with examples. (15)
OR
- b Write a short note on the following :
 - (i) Pyrolysis (5)
 - (ii) Microbial fuel cells (5)
 - (iii) Refuse derived fuel (5)

Z-Z-Z

END