

Course Code: OE349**Course Name: OE-I Non-Conventional Energy Sources**Date : Wednesday 13/08/2025Time : 2:30 To 3:30

Max. Marks: 25

- Instructions:
- 1) All questions are compulsory.
 - 2) Figures in rounded () brackets within the question, indicate scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
 - 3) CO is the index number of the Course Outcome statement.
 - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
 - 5) Assume suitable data if necessary.
 - 6) Use of non-programmable calculator is allowed.

| | | Marks | CO | BT Level |
|------------------|--|-------|-------|-------------|
| Q.1 | Answer the following: | | | |
| a) | What is Reserve-to-Production (R/P) ratio? (3 marks) How is it useful in energy planning? (3 marks) | 6 | CO4 | L4 |
| b) | List any four major pollutants emitted by conventional power plants and mention their effects on the environment.(pollutant list 2 marks, effects 4 marks) | 6 | CO1,2 | L2 |
| <u>OR</u> | | | | |
| b) | Define the term "energy potential". (2 marks) Differentiate between theoretical, technical, and practical potential. (Differences – 4 marks) | 6 | CO1,2 | L2 |
| Q.2 | Answer the following: | | | |
| a) | For New Delhi (28° 35', 77° 12' E), Calculate zenith angle of sun and length of day in hours on 15 January 2023. (3 marks each) | 6 | CO4 | L3 |
| b) | Define a solar collector. (1 mark) Differentiate between flat plate and concentrating solar collectors. (6 marks) | 7 | CO5 | L4 |
| <u>OR</u> | | | | |
| b) | Differentiate between solar thermal and solar PV power generation based on land requirement and storage. (7 marks) | 7 | CO3 | L4 |

