

| Name: | |  | |
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| Enrolment No: | | | |
| UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, Dec 2023 | | | |
| Programme Name: B Tech (SE) | | Semester : III | |
| Course Name : Natural Resource Conservation Advances | | Time : 3 hrs. | |
| Course Code : SUEN2003 | | Max. Marks : 100 | |
| Nos. of page(s) : 01 | | | |
| Instructions: Go through the questions carefully and assume suitable data, if necessary. | | | |
| SECTION A (5Qx4M=20Marks) | | | |
| S. No. | Questions | Marks | CO |
| Q1 | Distinguish between human and capital resources? Explain natural resources and their distribution? | 4 | CO1 |
| Q2 | Explain resource conservation from a government's perspective? What do you understand by achieving Net zero by 2070, for India? | 4 | CO3 |
| Q3 | What are Forest resources? What are the direct and indirect benefits/ecological services from Forest ecosystems? | 4 | CO2 |
| Q4 | Provide short notes on a) Integrated resource management b) Lifecycle Assessment | 4 | CO1 |
| Q5 | Give a comparative account of active and passive solar heating systems with examples? | 4 | CO2 |
| SECTION B (4Qx10M=40Marks) | | | |
| Q6 | What is hydrogen economy? Describe the various hydrogen categories based on sources, energy requirements and their greenhouse gas emission potential? | 10 | CO2 |
| Q7 | Prove a brief overview of aquatic resources of India and their potential for revenue generation? Also mention the status of aquatic resources and plants to sustainably manage them? | 10 | CO4 |
| Q8 | What are environmental policies? How are they implemented in our country? Explain with at least two examples? | 10 | CO4 |
| Q9. | What are biofuels? Mention their categories based on a) sources, and b) processing technologies? | 10 | CO3 |
| SECTION C (2Qx20M=40Marks) | | | |
| Q10. | Describe biomass-based Resources in India. Explain a) their categories b) biomass distribution c) their revenue generation potential d) contributions to biogeochemical cycles e) their depletion and f) strategies to ensure better conservation and management? How can we sustainably use biomass via a biorefinery approach? Explain with an example? | 20 | CO4 |

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| Q11. | Explain the various renewable energy forms with examples? Which of these renewable energy sources have a better future in India? Provide renewable energy hotspots in India? Calculate the cumulative potential of renewables considering 100% infrastructure set up and implementation as per the mandates in the National Mission targeting Energy security? | 20 | CO4 |
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