Indian Association for the Cultivation of Science

(Deemed to be University under *de novo* Category)

Master's/Integrated Master's-PhD Program/Integrated Bachelor's-Master's Program/PhD Course

End-Semester Examination-Spring 2023

Subject: Know Your Environment ***Subject Code(s): AEC 1201***

Full Marks: 50 ***Time Allotted: 3 h***

Answer any five

1. '*Renewable energies are very site specific and not all renewable energy technology can be implemented everywhere*'. Discuss with examples. India has focus on which renewable energies and why? Mention the recent success of India in implementing projects in solar photovoltaics. **5+3+2=10**

2. What is a Sustainable Blue Economy? Explain with diagrams how can we use ocean thermal energy? Which places in the world have focus for using ocean thermal energy as one of their major renewable energy resource and why? What is Coriolis force? **3+3+2+2=10**

3. What is Offshore and Onshore wind energy harvesting? What is a difference between horizontal axis and vertical axis wind turbine? In India which places have focus on wind energy harvesting? Name two such projects. ~~What~~ How does a tidal barrage generate energy from tides? **3+3+2+2=10**

4. What are the different ways we can generate energy from Sun? '*India gifts a Solar Park to power UN headquarters with green electricity*', which one is this and where is it situated? How does technology help in environment monitoring? Explain with 2 examples. **3+2+5=10**

5. '*Plastic pollution is one of the most dangerous consequences of human development*'. Briefly discussing the present scenario of plastic pollution, propose remedies to control it in near future. What are the various sources of air and water pollutants? What is AQI and explain if an N95 mask will be useful if you are visiting an industrial zone releasing particulate matter of 0.5 microns in size. **5+3+2=10**

6. Explain the concepts of Eco-System and Biome. What is a biodiversity hotspot? How many biodiversity hotspots are there in the world and how many are in India with describing their spread and locations. Name 2 Indian species which are rare and endangered and 2 Indian species which are now extinct. **3+1+3+3=10**

7. Describe a Forest Eco system. What is a Pioneer Species? How does primary succession happen? Explain. Comment on why a high diverse ecosystem has a greater rate of sustenance as compared to a low diverse ecosystem, giving real examples. What are endemic species, keystone species and foundation species? **2+1+2+2+3=10**

8. What is the need of In-situ and Ex-situ conservation of biodiversity? This act is aimed to protect plants and animals that are not domesticated'. Name it. What is Environment Protection Act? When is World Biodiversity Day? What is best way of conservation of water in cities. On what work did Klaus Hasselman got the nobel prize in Physics in 2021?

4+1+1+1+2+1=10
