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Question Paper Code : 30202

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Fourth Semester

Aeronautical Engineering

GE 3451 – ENVIRONMENTAL SCIENCES AND SUSTAINABILITY

(Common to: Aerospace Engineering/Automobile Engineering/Biomedical Engineering/Civil Engineering/Computer Science and Engineering/Computer and Communication Engineering/Electrical and Electronics Engineering/Electronics and Communication Engineering/Electronics and Instrumentation Engineering/Electronics and Telecommunication Engineering/Geoinformatics Engineering/Industrial Engineering/Industrial Engineering and Management/Instrumentation and Control Engineering/Manufacturing Engineering/Marine Engineering/Materials Science and Engineering/Mechanical Engineering/Mechanical Engineering (Sandwich)/Mechanical and Automation Engineering/Mechatronics Engineering/Medical Electronics/Petrochemical Engineering/Production Engineering/Robotics and Automation/Safety and Fire Engineering/Agricultural Engineering/Artificial Intelligence and Data Science/Bio Technology/Biotechnology and Biochemical Engineering/Chemical Engineering/Chemical and Electrochemical Engineering/Computer Science and Business Systems/Fashion Technology/Food Technology/Handloom and Textile Technology/Information Technology/Petrochemical Technology/Petroleum Engineering/Pharmaceutical Technology/Plastic Technology/Textile Chemistry/Textile Technology.

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Ascertain the need of public awareness on Environmental aspects.
2. Highlight the issues happened in the society due to the poaching of wildlife.
3. Give a brief discussion on the consequences of the noise pollution.
4. Give a brief description about the E-waste management.
5. Highlight about the possibilities of the new energy sources suitable for the implementation.

6. Comment on the important applications of the hydrogen energy.
7. State about the salient features of the sustainable development.
8. Give a brief description on the concept of carbon credit.
9. Mention about the material life cycle assessment.
10. Give a specific note on the environmental impact assessment.

PART B — (5 × 13 = 65 marks)

11. (a) Elaborate in a systematic manner about the eco system and the respective energy flow.
Or
(b) Elaborate in a systematic manner about the conservation of biodiversity based on the In-situ and the Ex-situ approaches.
12. (a) Explain the causes, effects and the suitable preventive measure of water and soil pollutions.
Or
(b) With a suitable case study, explain on the occupational health and safety management system.
13. (a) Enumerate on the energy harnessing based on the ocean energy resources and tidal energy conversion.
Or
(b) Enumerate in a suitable manner about the origin and power plants of geothermal energy.
14. (a) With a case study, elaborate on the achievement of sustainability from the unsustainable level.
Or
(b) With a case study, elaborate on the local environmental issues and the possible solutions for them.
15. (a) Explain on the practices suitable for the development towards socio-economical and technological changes.
Or
(b) With suitable examples, explain on the practical implementations of sustainable transports and sustainable energies.

PART C — (1 × 15 = 15 marks)

16. (a) Enumerate on the indicators and intervention areas to achieve the sustainable development goals.
Or
(b) With a suitable case study, elaborate on the practical implementation of the environmental management in industries.