

MODULE I

- 1) (a) Illustrate the challenges of a multilateral environmental agreement with the help of two examples. (3)
(b) Give any two examples for technology going hand in hand with sustainability. (2)
- 2) (a) How can a developing country like India grow its riches by maintaining its riches. (3)
(b) Write about water act and air act in short sentences. (2)
- 3) (a) List any three objectives of Environment Protection Act. (3)
(b) List any four major challenges in the path of sustainable development. (2)
- 4) (a) "Environmental impacts which were transboundary / global in nature, raised alarm at the international level to come up with common solutions from all over the world for various environmental issues." What are the major global level initiatives taken for sustainable development? (2)
(b) Imagine you are the secretary of your residential area. Due to land pollution produced by dumping of household waste in your locality, stray dogs are increasing tremendously. Suggest any three measures which you would adopt, so as to reduce pollution and thereby drive away the stray dogs from your locality. (3)
- 5) (a) What are the three pillars of sustainability? (3)
(b) What is the fourth pillar of sustainability and why is it called so? (2)
- 6) Design a poster to convey the need of sustainable practices within households. (5)
- 7) (a) Sustainability needs to be the key objective of strategy planning and should be integrated within all decision making process. With respect to the above statement, explain the role of fourth pillar of sustainability in achieving the same. (3)
(b) List any four features of MEAs.(2)
- 8) (a) How can space technology be utilised to achieve sustainability?(3)
(b) Briefly describe the role of CDM in green house gas emission reduction. Also list the basis of classification of countries under CDM. (2)

MODULE II

- 1) (a) Identify any three steps taken by the Government of India to control ozone layer depletion. (3)
(b) Imagine you are a CEO of a company. List any two steps you will take to bring about a pollution free environment in your campus? (2)
- 2) (a) List out and prepare a rank list of the pollution problems (based on the impact, in ascending order) faced by the people in Kerala. Describe what changes you will propose to bring down the first two types in your list. (3)
(b) Briefly describe the terms carbon trading and carbon credit. (2)
- 3) (a) Water pollution can cause a variety of harmful effects in human beings, list out any four of them. (2)
(b) Waste water can be reused in different ways. Briefly discuss on any two ways by which the waste water can be reused. (3)
- 4) (a) What are the major impacts of solid waste on air pollution? (2)
(b) How can 3R concepts be implemented in the field of plastic waste management? (3)
- 5) Explain different types of pollutions, their sources and impacts on the environment. (5)
- 6) Write 5 points on how you would use the 3R concept to reduce the total waste output of your campus. (5)
- 7) (a) Give any 4 causes for the increasing pollution in Kerala. (2)
(b) Suggest any 6 measures to ensure quality of drinking water. (3)
- 8) Prepare a poster making people aware of the health hazards caused by throwing garbage in public. (5)

- 9) (a) Briefly list the sources of indoor and outdoor air pollution. (1)
 (b) "Today climate change is a reality and one of the defining issues of our times". List any 4 key points you would use to address this issue in a students' conference. (4)
- 10) (a) List any 4 ways in which ozone friendly products can be applied in your daily life. (2)
 (b) The waste from one industry can be a valuable resource for another industry. Support with at least 3 examples. (3)

MODULE III

- 1) a) Highlight the significance of life cycle cost evaluation when applied to housing projects to establish the advantage of environmentally sustainable housing projects. (3)
 b) If you are asked to evaluate the environmental impact of the above project, state any two factors that can be identified as the key impacts on the environment. (2)
- 2) a) Life expectancy of humans have substantially increased over the past two decades. Discuss about the scope of biomimicking in the development of human race through improvement in medical field. (3)
 b) Prepare a slogan for the "Environment Week" to be celebrated in your college. (2)
- 3) Michael Fred Phelps is an American former competitive swimmer and the most decorated Olympian of all time, with a total of 28 medals. However he is on allegation regarding his secret of victory.
 a) Which branch of science was misused by him? (1)
 b) Who is considered as the Father of this science? (1)
 c) Give two examples of the same? (2)
 d) Can you propose a new idea based on this science? (1)
- 4) a) What is LCA? (1)
 b) Pictorially represent the LCA of a computer. (4)
- 5) a) Expand the following:
 i) EIA ii) EMS iii) LCA iv) ISO (2)
 b) Draw the life cycle of a school bag. (3)
- 6) What are the five types of LCA? (5)

MODULE IV

- 1) a) A recent survey shows that nearly 95% of energy for transportation comes from petroleum. Discuss on its various impacts on environment and suggest any three measures to curb them. (3)
 b) List any four characteristics of a green building? (2)
- 2) a) Provide any two suggestions for the construction of a "Green Airport" in Kerala. (4)
 b) Name any one green building situated in Kerala. (1)
- 3) A "sustainable habitat" is an ecosystem that produces food and shelter for the inhabitants without much resource depletion, in such a way that no external waste is produced.
 a) What are the benefits of a sustainable habitat? (2)
 b) How can we achieve it? (2)
 c) Name the mission launched by the Government of India for achieving it. (1)
- 4) a) Briefly explain the three primary rating systems of Green building in India? (3)
 b) Suppose you are the owner of a newly constructed building, for which you wish to get a Green building certificate. What necessary steps will you take to achieve it? (2)
- 5) a) List out three basic objectives of green building concept. (3)
 b) Name any one green building in Kerala clearly explaining its features. (2)
- 6) a) Mention any three methods to increase the energy efficiency of your house. (3)
 b) Discuss any four criteria that can be followed to increase the indoor air quality. (2)

MODULE V

- 1) Write any five points to differentiate between the first and the third generation biofuels. (5)
- 2) List any three advantages and two disadvantages of a wind mill. (5)
- 3) Write arguments supporting and opposing the proposed Athirappilly hydroelectric power plant in our state. (5)
- 4) a) List any 4 latest advancements in the field of solar power. (4)
b) Which is the most abundant fossil fuel? (1)
- 5) a) List any three different types of fuel cells. (3)
b) What are the advantages and limitations of fuel cells? (2)
- 6) List any five points of comparison between geothermal and tidal energy. (3)
- 7) Expand OTEC? Draw block diagrams to show the working of the two types of OTEC. (5)
- 8) a) List the biofuels that can be derived from biomass. Explain any one in detail. (1 + 2)
b) Which non-renewable energy source OPEC is associated with? Briefly discuss about it. (2)
- 9) a) Name the two energy converters which hybrid parks are rich in? Compare their use with turbines in hydroelectric power plants? (1 + 4)
- 10) a) Differentiate between conventional and non-conventional energy sources? Which will you support? Substantiate. (2 + 1)
b) Compare the advantages and disadvantages of geothermal power plants and fuel cells. (2)
- 11) According to energy experts, non conventional energy is better than conventional sources.
a) Use of nonconventional energy is preferred over conventional energy. Justify. (3)
b) What are renewable energies used in your local area and what are the new techniques which can be introduced? (2)
- 12) Solar energy is the ultimate source of energy.
a) Give a brief description on its tapping. (2)
b) Write two appliances that work on solar energy. (3)
- 13) a) What are biofuels? (2)
b) Biomass is carbon neutral. Write your views on this statement. (3)
- 14) Conventional energy is diminishing at an alarming rate. Suggest methods for its conservation. (5)

MODULE VI

- 1) a) How does industrialisation effect sustainable development? (3)
b) Do you think coconut palm is a sustainable material? Analyse with schematic representation using cradle to grave analysis. (2)
- 2) a) Discuss about the four pillars of urban sustainability. (2)
b) Mention three effective green practices for industrial processes? (3)
- 3) If you are going to start a cement industry, cite five measures to make it sustainable. (5)
- 4) List five relevant measures to make your locality pollution free. (5)
- 5) a) Explain any two common benefits that an industry can expect from the adoption of ecofriendly industrial practices. (2)
b) "Like slavery and apartheid, poverty is not natural. It is man-made and it can be overcome and eradicated by the actions of human beings." - Nelson Mandela
Write any three measures to be taken from moving towards goal of sustainable poverty reduction. (3)
- 6) a) List any four evaluation indicators of sustainable material selection. (2)
b) Prepare a poster to make awareness on sustainable urbanization. (3)

- 7) Urbanisation is taking place at a faster rate in India. Population residing in urban areas in India, according to 1901 census, was 11.4%. This count increased to 28.53% according to 2001 census, and crossing 30% as per 2011 census, standing at 31.16%.
- a) Define urbanisation. How do you think it is affecting the future generation? (3)
 - b) How can we attain sustainable urbanisation? (2)
- 8) 30 crore people still live in extreme poverty in India: UN report.
- a) Suggest a few sustainable practices in order to raise the living standards of people. (2)
 - b) How does population explosion affect poverty? (3)
- 9) What are the major advantages of industrial symbiosis? (5)
- 10) Technology assessment is a scientific, interactive, and communicative process that aims to contribute to the formation of public and political opinion on societal aspects of science and technology. Justify this statement. (5)