Q. Code:184356

Reg. No. | | | | | | | | | | | | | |

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2024

Fourth Semester

GE22451 – ENVIRONMENTAL SCIENCES AND SUSTAINABILITY

(Common to all branches)

(Regulation 2022)

TIME: 3 HOURS **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	Recognize the fundamental role of ecosystems and suggest an appropriate method for the conservation of biodiversity.	**3**
CO 2	Describe the different types of pollution, their effects and strategies to minimize or eliminate pollution.	**3**
CO 3	Identify the various renewable and use the appropriate ones thereby conserving non-renewable resources for future generations.	**3**
CO 4	Explain the various goals of sustainable development applicable to suitable technological advancement and societal development.	**2**
CO 5	Summarize the various sustainability practices, green materials, energy cycles, and the role of green engineering in sustainable urbanization.	**2**

PART- A (20 x 2 = 40 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	Define Ecosystem and list out the types.	**1**	**2**
2.	Differentiate food web and food chain. Give one example each.	**1**	**2**
3.	Distinguish between endangered and endemic species.	**1**	**2**
4.	Explain why India is considered as a mega-diversity nation.	**1**	**2**
5.	Compare point and non-point sources of water pollution.	**2**	**2**
6.	Briefly explain two key features of the Wildlife Protection Act, 1972.	**2**	**2**
7.	Differentiate between recycling and reuse.	**2**	**2**
8.	Describe two ways in which human activity can lead to soil pollution.	**2**	**2**
9.	State two benefits of geothermal energy.	**3**	**2**
10.	List four applications of hydrogen energy.	**3**	**2**
11.	What are the merits of tidal energy conversion.	**3**	**2**
12.	What is the principle behind ocean thermal energy (OTE)?	**3**	**2**
13.	Define the term “sustainable development”.	4	2
14.	Differentiate between Nominal GDP and Real GDP.	**4**	**2**
15.	Distinguish between carbon footprint and carbon credit.	**4**	**2**
16.	Explain the concept of environmental management.	**4**	**2**

17.	Provide two specific examples of green materials, explaining why they are considered green.	**5**	**2**
18.	Define energy efficiency, explaining how it can benefit us.	**5**	**2**
19.	Explain the term "carbon emissions" and their connection to global climate change.	**5**	**2**
20.	Describe two advantages of adopting a zero-waste approach.	**5**	**2**

PART- B (5 x 10 = 50 Marks)

		Marks	CO	RBT LEVEL
21. (a)	Explain the processes that drive ecological succession. Discuss the roles of facilitation, competition, and tolerance in shaping the development of an ecosystem.	**(10)**	**1**	**3**
	(OR)			
(b)	Explain the importance of biodiversity conservation and outline two methods for achieving it. Discuss the advantages and limitations of each method.	**10**	**1**	**3**
22. (a)	Describe the sources, human health effects of air pollution, and a method for reducing air pollution from automobiles and industry.	**(10)**	**2**	**2**
	(OR)			
(b)	Explain the importance of proper solid waste management. Describe two traditional methods of solid waste disposal, highlighting their advantages and disadvantages.	**(10)**	**2**	**2**
23. (a)	**(i)** Describe the principle of energy conservation and its significance in today's world.	**(5)**	**3**	**2**
	(ii) Explain five specific ways to conserve energy in our daily lives.	**(5)**	**3**	**2**
	(OR)			
(b)	**(i)** Explain why hydrogen is considered an attractive fuel option.	**(5)**	**3**	**2**
	(ii) Identify two different forms of ocean energy that can be harnessed for electricity generation.	**(5)**	**3**	**2**
24. (a)	**(i)** Discuss the concept of carbon credits and their potential benefits in addressing climate change.	**(5)**	**4**	**2**

	(ii)	List out the sources, causes, and remedial measures for reducing a carbon footprint.	**(5)**	**4**	**2**
		(OR)			
(b)		Explain the eight Millennium Development Goals (MDGs) adopted by the United Nations. Discuss the significance of these goals in the fight against global poverty and inequality.	**(10)**	**4**	**2**
25. (a)		Explain the objectives and benefits of EIA. Briefly discuss the steps involved in conducting an EIA.	**(10)**	**5**	**2**
		(OR)			
(b)	**(i)**	Elaborate on the principles, components, merits, and demerits of green building.	**(5)**	**5**	**2**
	(ii)	Define carbon sequestration. Explain the various types of carbon sequestration.	**(5)**	**5**	**2**

PART- C (1 x 10 = 10 Marks)

(Q.No.26 is compulsory)

		Marks	CO	RBT LEVEL
26.	Imagine a city that thrives without compromising the well-being of its residents or the environment. This is the essence of sustainable urbanization. With the world rapidly urbanizing, how can we design and manage cities that meet the needs of present and future generations?	**(10)**	**5**	**3**

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