Reg. No.																

Question Paper Code	13217

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024

Seventh Semester

Civil Engineering

20CYOE907 - GREEN TECHNOLOGY

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (20 × 1 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Identify the parameters that are primarily concerned with Green Technology (a) Enhancing human convenience (b) Reducing carbon emissions (c) Increasing industrial production (d) Improving technological efficiency only	1	K2	CO1
2.	What does "carbon footprint" refer to in green technology discussions? (a) The total number of carbon atoms in the environment (b) The measure of carbon stored in forest (c) The footprint left by industrial machine (d) The amount of carbon dioxide emissions produced by human activities	1	K1	CO1
3.	Identify the primary benefit of renewable energy sources in green technology? (a) Unlimited supply of natural resources (b) Zero environmental impact (c) High production speed (d) Free installation and maintenance	1	K2	CO1
4.	Which of these is a core principle of green building technologies? (a) Using the most affordable materials (b) Maximizing the use of fossil fuels (c) Minimizing energy consumption and waste (d) Promoting the use of single-use plastics	1	K2	CO1
5.	Indicate the primary goal of Cleaner Production (CP) (a) To reduce product quality while increasing output (b) To minimize environmental impact through improved production processes (c) To increase industrial production speed (d) To maximize the use of raw materials regardless of waste	1	K2	CO2
6.	Which of the following is NOT an outcome of Cleaner Production? (a) Lower operating costs due to efficient resource use (b) Reduced waste treatment costs (c) Increased environmental risk (d) Enhanced product competitiveness	1	K1	CO2
7.	Represent the key benefit of implementing Cleaner Production. (a) Improved efficiency and reduced environmental footprint (b) Increased costs due to environmental regulations (c) Decreased product quality and customer satisfaction (d) Increased emissions and waste disposal	1	K1	CO2
8.	Life Cycle Assessment (LCA) is often used in Cleaner Production to (a) Measure the durability of products (b) Improve product aesthetics (c) Calculate production costs (d) Assess the environmental impacts of a product from raw material extraction to disposal	1	K2	CO2
9.	Indicate the key principle of both Pollution Prevention and Cleaner Production (a) Treating waste after it has been created (b) Using resources more efficiently to minimize waste and emissions (c) Maximizing the use of non-renewable resources (d) Ignoring environmental regulations	1	K2	CO3

10.	Recall the main goal of both Pollution Prevention and Cleaner Production (a) Reducing operational costs by any means necessary (b) Minimizing the environmental impact of industrial activities (c) Focusing solely on profitability (d) Complying with environmental laws without making improvements	*1*	*K1*	*CO3*
11.	Identify the statement which best describes a Cleaner Production approach to energy use. (a) Reducing energy consumption through efficient technologies and renewable sources (b) Using the cheapest energy source available regardless of environmental impact (c) Increasing energy use to maximize production (d) Using only fossil fuels in energy generation	*1*	*K1*	*CO3*
12.	Which of the following is NOT a Pollution Prevention technique? (a) Energy conservation (b) End-of-pipe pollution control measures (c) Process modification to reduce emissions (d) On-site recycling of waste materials	*1*	*K1*	*CO3*
13.	Represent the reason for wide usage of conventional energy resources. (a) They are unlimited and easily renewable (b) They require less technology to harness (c) They have zero environmental impact (d) They are cheaper and provide a reliable supply of energy	*1*	*K1*	*CO4*
14.	Which of the following is the most abundant conventional energy resource globally? (a) Natural gas (b) Coal (c) Oil (d) Nuclear energy	*1*	*K1*	*CO4*
15.	Oil is mainly used for which of the following purposes? (a) Generating electricity (b) Heating homes (c) Transportation fuel (d) Manufacturing electronics	*1*	*K2*	*CO4*
16.	Natural gas is often referred to as a "cleaner" conventional energy source because: (a) It produces less carbon dioxide than coal and oil (b) It emits no greenhouse gases (c) It is renewable and inexhaustible (d) It can be used without any emissions	*1*	*K2*	*CO4*
17.	Which of the following is considered a green fuel? (a) Coal (b) Biodiesel (c) Natural gas (d) Diesel	*1*	*K1*	*CO5*
18.	Identify the green fuel which is commonly produced from vegetable oils or animal fats. (a) Ethanol (b) Methanol (c) Biodiesel (d) Hydrogen	*1*	*K1*	*CO5*
19.	Indicate the major challenge in the adoption of green fuels. (a) Limited availability of renewable resources (b) High greenhouse gas emissions (c) High production costs and lack of infrastructure for large-scale use (d) Scarcity of feed stocks like biomass	*1*	*K2*	*CO5*
20.	Identify the process involves converting biomass into a gas, such as syngas, that can be used for energy production. (a) Combustion (b) Pyrolysis (c) Anaerobic digestion (d) Gasification	*1*	*K2*	*CO5*

PART - B (10 × 2 = 20 Marks)

Answer ALL Questions

21.	Represent the key factors that impact the adoption and effectiveness of green technologies.	*2*	*K1*	*CO1*
22.	Give the necessity of industrial ecology.	*2*	*K1*	*CO1*
23.	Indicate the benefits of cleaner production.	*2*	*K2*	*CO2*
24.	Sketch the Process Flow Diagram for CP Assessment.	*2*	*K2*	*CO2*
25.	Comment about Eco Labelling.	*2*	*K1*	*CO3*
26.	Differentiate carbon sequestration and carbon stock.	*2*	*K2*	*CO3*
27.	Identify the effects of conventional sources of energy on the environment.	*2*	*K2*	*CO4*
28.	Define Non- Conventional Sources of Energy.	*2*	*K1*	*CO4*
29.	List the similarities and differences between fossil fuels and renewable energy.	*2*	*K1*	*CO5*
30.	Write the main purpose of geothermal energy.	*2*	*K2*	*CO5*

PART - C (6 × 10 = 60 Marks)

Answer ALL Questions

31.	a)	Infer the importance of green technology in addressing climate change and promoting sustainable development.	*10*	*K2*	*CO1*
		OR			
	b)	Discuss at least three factors that affect the adoption of green technologies in various sectors and how these factors interplay to influence decision-making?	*10*	*K2*	*CO1*
32.	a)	Explain the fundamental principles of Cleaner Production, and how can they be applied across different industries.	*10*	*K2*	*CO2*
		OR			
	b)	Elaborate the roles do industry, government, and educational institutions play in the adoption and promotion of Cleaner Production.	*10*	*K2*	*CO2*
33.	a)	Construct the steps involved in performing a comprehensive waste audit. How can its findings be applied to Cleaner Production?	*10*	*K2*	*CO3*
		OR			
	b)	Asses the concept of carbon credits support industries in reducing their carbon footprints.	*10*	*K2*	*CO3*
34.	a)	Outline the key environmental challenges associated with the extraction, processing, and consumption of conventional energy resources.	*10*	*K2*	*CO4*
		OR			
	b)	Examine the advancements in renewable energy technologies to bridge the gap between current energy needs and future energy availability.	*10*	*K2*	*CO4*
35.	a)	Describe the techniques involved in green fuels which help in reducing carbon emissions and mitigating climate change while supporting economic growth.	*10*	*K2*	*CO5*
		OR			
	b)	Explain the opportunities and key challenges for expanding wind energy infrastructure in India, and how can they be addressed.	*10*	*K2*	*CO5*
36.	a)	How can non-conventional energy sources contribute to a more sustainable and resilient energy future, particularly in reducing dependence on fossil fuels?	*10*	*K2*	*CO4*
		OR			
	b)	Predict the importance of geothermal energy that can be utilized in countries like India, and discuss the potential advantages and limitations of this energy source.	*10*	*K2*	*CO4*