END TERM EXAMINATION
(CBCS)(SUBJECTIVE TYPE)
Course Name:B.Tech., Semester:II
(MAY, 2024)

Subject Code: BAS-106	Subject: Environmental Sciences
Time :3 Hours	Maximum Marks :60
Note:Q. 1 is compulsory. Attempt one question each from the Units I, II, III & IV.	

Q1			(5*4=20)
	(a)	Explain the threats to biodiversity and different ways of its conservation	
	(b)	Discuss the process for the removal of excess nutrients from waste water.	
	(c)	Describe the role of ocean as a heat engine with its limitations.	
	(d)	(2.5*2=5)	
		(i) Elaborate the biochemical effects of lead as a toxicant (2.5)	
		(ii) Role of promoters in photo degradation of polymers (2.5)	
		UNIT-I	
Q2	(a)	Discuss the types of subsistence agriculture and impacts caused by agriculture.	(5*2)
	(b)	Explain two effects of over-utilization of surface water. Also illustrate two methods for the conservation of water	
Q3	(a)	Justify the statement that 'Environmental Impact Assessment' (EIA) is the most important tool of 'environment management system' (EMS).	(5*2)
	(b)	(i) Describe the effects of mineral extraction on environment.	
		(ii)Write a short note on Salinity.	
		UNIT-II	
Q4	(a)	Describe the two methods to control emissions of particulate matter in the air.	(5*2)
	(b)	(i) Discuss 'Trickling filter method' for treatment of waste water.	
		(ii) Calculate the atom efficiency for 'Claisen rearrangement reaction'.	
Q5	(a)	(i) Explain the process 'sanitary landfill' involved in solid waste treatment.	(5*2)
		(ii) Describe the chemical processes involved in the treatment of hazardous waste	
	(b)	Discuss the "Green reaction" tool of green chemistry in detail with suitable example.	
		UNIT-III	
Q6	(a)	(i) Discuss the two types of cracking with their advantages.	(5*2)
		(ii) Explain the term used to represent knocking in diesel and petrol engine.	
	(b)	A coal sample contains C= 85%, H=10% and ash=5%. When this coal sample was tested in the laboratory for its calorific value in a bomb calorimeter, the following data were obtained. Wt of coal burnt= 0.98g, Wt of water taken= 1000g, Water equivalent of calorimeter=2500g, Rise in	

		Temperature $=2.50°C$. Fuse wire correction $=8$ cal, Acid Correction$=50$ cal, cooling correction$=0.02 °C$. Calculate the gross and net calorific value of the coal sample in cal/g. The latent heat of condensation of steam is 580 cal/g.	
Q7		(a) Describe steps involved in the production of biodiesel. Give advantages of biodiesel as a green fuel. (b) A petroleum gas was found to have the following composition by weight $C_2H_6=5\%$, $C_3H_8 = 10\%$, C_4H_{10} (Butane)$=40\%$, C_4H_{10} (Isobutane)$=30\%$, $C_4H_8=10\%$ and $C_3H_6=4.5\%$. Calculate volume of air necessary for required for complete combustion of $100\ m^3$ of gas if 35% excess air is required.	$(5*2)$
		UNIT-IV	
Q8		(a) Discuss method of production and important applications of following bioplastics 　(i)　Polycaprolactone 　(ii)　Polylactic acid 　(iii)Explain the role of Arsenic in 'Inhibition of ATP formation'.	$(5*2)$
Q9		(a) Calculate the number average and weight average molecular masses of polypropylene polymer with the following composition: $[-CH_2-CH(CH_3)-]_{400}$ is 25 %, $[-CH_2-CH(CH_3)-]_{800}$ is 35 %, $[-CH_2-CH(CH_3)-]_{600}$ is 40 %. {Given that atomic mass of $C = 12$, $H = 1$ (b) Explain howdose response curves are used to derive dose estimates of chemical substances.	$(5*2)$