GURU NANAK INSTITUTE OF TECHNOLOGY

An Autonomous Institute under MAKAUT

B.Tech/CSE-ECSE/ODD/SEM 3/MC 301/2022-23

PAPER TYPE: Regular

YEAR: 2022

Environmental Science

PAPER CODE: MC 301

TIME ALLOTTED: 1.5 HOURS FULL MARKS: 50

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable

GROUP – A
(Multiple Choice Type Questions)

1. Answer any ***ten*** from the following, choosing the correct alternative of each question: **10×1=10**

SL. NO.	Question	Marks	CO	
(i)	Ozone is a pollutant when present in (a) stratosphere (b) troposphere (c) mesosphere (d) ionosphere	01	CO3	
(ii)	The value of earth's albedo is (a) 0.21 (b) 0.031 (c) 0.021 (d) 0.31	01	CO4	
(iii)	Greenhouse effect is due to (a) Over cultivation of land (b) Testing nuclear weapons (c) Some atmospheric gases like CO_2, H_2O vapour and some manmade gases (d) None of these	01	CO4	
(iv)	Which of the following is an example of *in situ* conservation? (a) Deer park (b) Seed bank (c) Wildlife sanctuary (d) Aquarium	01	CO2	
(v)	The disinfection by chlorine is due to the formation of (a) Chlorine radical (b) Nascent oxygen (c) Oxygen gas (d) None of these	01	CO3	
(vi)	The decomposers could be (a) amoeba (b) fungi (c) earthworm (d) all of these	01	CO2	
(vii)	Which of the following is not biodegradable? a) polythene b) cotton c) vegetable waste d) wood	01	CO2	
(viii)	Identify the prime component of London smog (a) water (b) sulphur dioxide (c) carbon dioxide (d) carbon monooxide	01	CO3	

	(ix)		Sulphur cycle is (a) hydrologic cycle (b) gaseous cycle (c) sedimentary cycle (d) elementary cycle	01	CO2	
	(x)		Temporary hardness of water is due to (a) NO_3^- (b) Cl^- (c) HCO_3^- (d) SO_4^{2-}	01	CO3	
	(xi)		The saturated value of DO is approximately (a) 9 mg/L (b) 20 mg/L (c) 6 mg/L (d) 5 mg/L	01	CO4	
	(xii)		Environmental resistance factor is (symbols have their usual meaning) (a) rN (b) 1-N/K (c) K (d) $rN_0(1-N/K)$	01	CO1	

GROUP – B*
(Short Answer Type Questions)

Answer any ***four*** from the following: **4×5=20**

SL. NO.				Marks	CO	
2.	(a)		What is Acid rain? Give the reactions involved in acid rain formation.	5	CO2	
3.	(a)		Illustrate the difference between Primary and Secondary Air Pollutants with suitable examples.	5	CO4	
4.	(a)		Discuss the process of ozone layer depletion and the photochemical reactions involving in it.	3	CO4	
	(b)		What is the impact of ozone layer depletion in human civilization?	2	CO4	
5.	(a)		Prove that $r= 1/t*\ln[K/N_0-1]$, where symbols have their usual meaning.	5	CO1	
6.	(a)		Write the differences between BOD and COD. How 5 day BOD is conventionally measured in the laboratory?	5	CO4	
7.	(a)		Explain bio-magnifications. What is its significance in food chain?	5	CO1	

GROUP – C*
(Long Answer Type Questions)

Answer any ***three*** from the following: **2×10=20**

SL. NO.				Marks	CO No.	
7.	(a)		What is Green house effect? Write the impacts of it.	5	CO2	
	(b)		What will the ratio of BOD_5 at 20 °C, to that of $BOD_{2.5}$ at 35 °C? What is hydraulic gradient?	3+2	CO4	
8.	(a)		What is doubling time (t_d) and half life ($t_{1/2}$) time for population? Find out the condition when $t_d = t_{1/2}$	5	CO1	
	(b)		What is material balance? Write down the material balance equation for Steady state non conservation and give possible solution.	5	CO1	

9.	(a)		Write down the differences between musical sound and noise.	5	CO4	
	(b)		Write down the differences between Sulphurous SMOG and Photochemical SMOG.	5	CO4	
10.	(a)		Define Maximum Sustainable Yield (MSY) as per Logistic Growth Model.	2	CO1	
	(b)		Write down the names of the heavy metal ions/ anions that are responsible for: Minamata Disease, Black Foot Disease and Blue Baby Syndrome.	3	CO4	
	(c)		In a work area, the noise levels are read as 100 (dBA) for 3 hours a day, 85 (dBA) for 2hours a day and 80 (dBA) for 3 hours day. Given the permissible hours for the sounds levels of 100 (dBA), 85 (dBA) and 80 (dBA) respectively are 1 hour, 8 hours and 16 hours, justify the condition of noise pollution at that particular area.	5	CO5	