Question No.				Quest	tions					
1.	Produc	cer gas is mixt	ure of :							
	(1) Carbon monoxide and nitrogen gas									
	(2) Carbon dioxide and hydrogen gas									
		ydrogen and w								
		xygen and nitr		5 D						
2.	The di	gestion process	taking p	lace in	a bioga	s plant	is te	rmed		
	(1) A1	naerobic		(2)	Oxidati		. 10 00	Imco	•	
	(3) Re	eduction	,	(4)	Aerobic	digest	ion			
3.	Lead is	s one of the tw	o most to	oxic ch	emicals	found	in ne	etrol	whic	h ca
	cause L	ram damage a	nd luekae	emia, v	which is	other?	p	JUI 01,	WILL	ii ca
		ılphur		(2)	Benzene	Э			**	
		The second secon			CIDIC					
		trogen oxide		(4)	SPM					
4.			ogen sulpl			causes	•			
4.	The pre	esence of hydro	ogen sulpl	nide in	i biogas			ive e	ffect	
4.	The pro		ogen sulpl gas produ	nide in	biogas ate (	2) C	orros	ive e		φ.
<b>4. 5.</b>	The pre (1) Re (3) Ac	esence of hydro duction in biog ts as catalyst	gas produ	nide in	a biogas cate (2	2) C 4) N	orros one c	f the	abov	
	The pre (1) Re (3) Ac Match	esence of hydro eduction in biog	gas produc List II and	nide in	a biogas cate (2	2) C 4) N	orros one c	f the	abov	
	The pre (1) Re (3) Ac Match	esence of hydro eduction in biog ts as catalyst the List I and I	gas produc List II and	nide in ction r	t the con	2) C 4) N	orros one c	f the	abov	
	The pre (1) Re (3) Ac Match	esence of hydro eduction in biog ts as catalyst the List I and I elow the lists:	gas produc List II and	nide in ction r	a biogas tate (2) t the con	2) C 4) N	orros one c	f the	abov	
	The pre (1) Re (3) Ac  Match to given be	esence of hydro eduction in biog ts as catalyst the List I and I elow the lists:	gas produc List II and	nide in ction r	a biogas cate (2	2) C 4) N	orros one c	f the	abov	
	The pre (1) Re (3) Ac  Match to given be  A  B  C	esence of hydroeduction in biogets as catalyst the List I and I elow the lists:  List I Hard acid Soft acid Hard base	gas produc List II and	List	a biogas cate (2	2) C 4) N	orros one c	f the	abov	
	The pro (1) Re (3) Ac  Match siven be A B C D	esence of hydroseduction in biogets as catalyst the List I and I elow the lists:  List I Hard acid Soft acid Hard base Soft base	gas produc List II and	tion r	a biogas cate (2	2) C 4) N	orros one c	f the	abov	
	The pre (1) Re (3) Ac  Match to given be  A  B  C	esence of hydroseduction in biogets as catalyst the List I and I elow the lists:  List I Hard acid Soft acid Hard base Soft base	gas produc List II and	List SO <sub>4</sub> RS <sup>+</sup>	a biogas cate (2	2) C 4) N	orros one c	f the	abov	
	The pro (1) Re (3) Ac  Match siven be A B C D	esence of hydroseduction in biogets as catalyst the List I and I elow the lists:  List I Hard acid Soft acid Hard base Soft base	gas produc List II and	List SO <sub>4</sub> RS <sup>+</sup>	a biogas cate (2	2) C 4) N	orros one d	f the	abov	
	The pro (1) Re (3) Ac  Match siven be A B C D	esence of hydroeduction in biogets as catalyst the List I and I elow the lists:    List I   Hard acid   Soft acid   Hard base   Soft base	gas produ	List SO <sub>4</sub> RS <sup>+</sup>	a biogas cate (2	2) C 4) N	orros one d iswei	f the	abov	
	The pre (1) Re (3) Ac  Match e given b  A B C D Codes:	esence of hydroeduction in biogets as catalyst the List I and I elow the lists:  List I Hard acid Soft acid Hard base Soft base	gas produc	List SO <sub>4</sub> RS <sup>+</sup>	the con	2) C 4) N rrect an	orros one d iswei	f the	abov	
	The pre (1) Re (3) Ac Match e given b  A B C D Codes:	esence of hydroeduction in biogets as catalyst the List I and I elow the lists:    List I   Hard acid   Soft acid   Hard base   Soft base   A   4	gas productist II and	List SO <sub>4</sub> RS <sup>+</sup>	the con	2) C 4) N rect an	orros one d iswer	f the	abov	

Question No.				Questions		-,		
6.	Match the List I and List II and select the correct answer from the cogiven below the lists:							
		List-I Particulatmosphere)	ate of the	List-II (Ch particulate	aracteristics e)	of the		
8	Α	Aerosol		1. Combina	ation of smok	e of fog		
	В	Fly ash		2. Minute p	particles with	water		
	C	Fume			by coal burni			
	D	Smog		4. Made up	of metal vap	our		
	Codes	:						
		A	В	C	D			
	(1)	2	3	1	4			
	(2)	2	3	4	1			
	(3)	3	4	2	1			
	(4)	3	4	1	2			
7.	Match		List II an	d select the cor	- 3 -	from the code		
7.	Match given	n the List I and below the lists	List II an	nd select the cor	rect answer			
7.	Match given	n the List I and	List II an		rect answer			
7.	Match given	the List I and below the lists List I (Element)	List II an	d select the cor	rect answer  in the body  rmal growth	)		
7.	Match given	n the List I and below the lists List I (Element) Aluminium	List II an	List II (Function  1. Needed for no	rect answer in the body ormal growth f Vitamin B12	2		
7.	Match given  I A A B C C C	n the List I and below the lists List I (Element) Aluminium Copper	List II an	List II (Function  1. Needed for no  2. Metabolism o	rect answer  in the body  rmal growth  f Vitamin B12  port enzyme	2		
7.	Match given  I A A B C C C	n the List I and below the lists List I (Element) Aluminium Copper Cobalt	List II an	List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans	rect answer  in the body  rmal growth  f Vitamin B12  port enzyme	2		
7.	Match given  I A A B C C C D N	n the List I and below the lists List I (Element) Aluminium Copper Cobalt	List II an	List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans	rect answer  in the body  rmal growth  f Vitamin B12  port enzyme	2		
7.	Match given  I A A B C C C D N	n the List I and below the lists List I (Element) Aluminium Copper Cobalt Nickel	List II an	List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans  4. Protein transfer	rect answer  in the body  rmal growth  f Vitamin B12  port enzyme of	2		
7.	Match given  I A A B C C C D N Codes	the List I and below the lists  List I (Element)  Aluminium  Copper  Cobalt  Nickel  3:  A  1	List II an	List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans  4. Protein transfer	rect answer  in the body  rmal growth  f Vitamin B12  port enzyme of the company	2		
7.	Match given  I A A B C C C D N  Codes  (1)	the List I and below the lists  List I (Element)  Aluminium  Copper  Cobalt  Nickel  3:  A  1  2	List II an:	List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans  4. Protein transfer  C  3	rect answer  in the body  rmal growth  f Vitamin B12  port enzyme of the company of the company  or in serum  D 4	2		

Question No.		Questions						
8.			e List I and ow the lists	l List II and se	lect the corr	ect answer	from the code	
2 9		List I		List II	<u> </u>			
	A	Food	chain	1. Relationsh	ip of all the or	rganisms in a	given habitat	
э.	В	Food	web	2. Distinct co	mmunities of	a particular		
	C	Biom	es	3. Producers, a niche	, consumers ar	nd decompos	ers is given in	
	D	Auto	troph	4. Photosyntl	hesis	*		
	Cod	es:	*);					
			A	В	С	D		
	(	1)	1	2	3.	4		
	(2)		3	1	2	4		
			3	4	2	1		
13 12		(3)	3	7		1 370		
9.		(3) (4) tch th	4	3	2	1 rect answer	from the code	
9.	Magive	tch then bel	4 ne List I an now the list	d List II and ses:	2 elect the corn	rect answer		
9.	Ma	(4) tch th en bel	4 ne List I an now the list	d List II and so s:  List II  1. Indirect sustaining	elect the correlation of the cor	rect answer	gy required for	
9.	Magive	tch then bel	4 ne List I an now the list I nass	d List II and so s:  List II  1. Indirect sustaining	ly supplies ang life on the means of stor	rect answer		
9.	Mar give	tch then bell List Bion	4 ne List I an now the list I nass	d List II and sets:  List II  1. Indirect sustaining 2. Good not solar en	ly supplies and life on the eneans of storiergy	rect answer	gy required for	
9.	Mar give	tch then bell List Bion	4 ne List I an ow the list nass	d List II and sets:  List II  1. Indirect sustaining 2. Good management of the sustaining of the susta	ly supplies and life on the eneans of storiergy	rect answer	gy required for	
9.	Mar give A B C	tch then bell List Bion	4 ne List I and ow the list I mass as	d List II and sets:  List II  1. Indirect sustaining 2. Good management of the sustaining of the susta	ly supplies and life on the eneans of storiergy	rect answer	gy required for	
9.	Mar give A B C	tch then bell List Bion Biog	4 ne List I and ow the list I mass as	d List II and sets:  List II  1. Indirect sustaining 2. Good management of the sustaining of the susta	ly supplies and life on the eneans of storiergy	rect answer	gy required for	
9.	Mar give A B C	tch then bell List Bion Biog	4 ne List I and ow the list I nass p-plants r energy	d List II and sets:  List II  1. Indirect sustaining 2. Good me solar en 3. An imperural are 4. Sources	ly supplies and life on the eneans of storiergy fortant solutions of liquid hyd	rect answer	gy required for	
9.	Mar give A B C	List Bion Biog Petro Sola des:	4 ne List I and ow the list I mass as o-plants r energy	d List II and sets:  List II  1. Indirect sustaining 2. Good me solar en solar en 4. Sources  B	ly supplies and life on the eneans of storiergy cortant solution eas	rect answer	gy required for	
9.	Mar give A B C	tch then bell List Bion Biog Sola des:	4 ne List I and ow the list I mass p-plants r energy A 4	d List II and sets:  List II  1. Indirect sustaining 2. Good n solar en 3. An imprural are 4. Sources  B 3	ly supplies and life on the eneans of stormergy sortant solution eas  of liquid hyd  C 2	rect answer	gy required for	

Question No.			Questions							
10.	Ma	tch the	List I and w the lists	List ]	II and sel	ect the co	rrect	answ	er from the code	
4		List I	(Pollutant)	List	II (Source	es)				
	A	CO		1.	Industrial					
	В	NO <sub>2</sub>		2.	Crushing	and burnin	g of c	oal		
	C	SO <sub>2</sub>		3.		e burning			ous fuel	
	D	H <sub>2</sub> S		4.		ower gener			tomobiles, which	
	Cod	les:		a I						
			A		В	C		D		
	(1)		4		3	2	,	1		
		2)	2		3	4		1		
		3)	3		4	1	2	2		
	(	4)	3		4	2		1	n 4" a	
11.	cons (a)	The a	onists for w	vhich nts en	of the foll nitted in o	owing rea	asons	3?	environmenta	
	(b)	(b) Acid rain affects both aquatic system as well vegetation								
	(c)	It has	distinct ef	fect or	n soil mic	robiology	and	chemi	istry	
			the correct	t ansv	ver using	the codes	give	en bel	ow:	
			, b and c		(2)	a and b				
		(3) a	and c		(4)	b and c				

Question No.	Questions								
12.			e List I and L ow the lists :	ist II and sel	ect the co	rrect answei	from the codes		
	1.5	List 1	(pollutants)	List II (Im	pacts)				
	A	Sulph	nur oxides			se, create bro , stunts plant	wn haze, causes growth		
	В	Nitro	gen oxides	2. Causes l	neadaches,	dizziness and	nausea, reduces ental processes		
	C	Carbo	on monoxide			rds plant grow			
	D	Hydr	ocarbon	4. Corrode	s metal, ca		nd chronic leaf		
	Cod	les :				29	5.7		
			Α -	В	C	D	II .		
		(1)	4	1	2	3	n (s );		
		(2)	2	3	4	1			
	-	(3)	3	4	2	1	2		
		(4) 4		3	1	2	2		
13.			e List I and L ow the lists :	ist II and sel	ect the co	rrect answei	from the codes		
			l (water uminant)	List II (Imp	acts)				
	A	Patho	ogens	1. Lead to t	he growth o	of undesired a	quatic life		
	В	Heav	y metals	2. Transmit	communic	able disease			
	C	Nutri	ents	3. Are com	mon in land	Ifill leachate a	and waste water		
	D	Susp	ended	4. Lead to t	he developi	ment of sludg	e deposits		
	Cod	des :					- 9		
			A	В	С	D			
		(1)	4	3	2	1			
		(2)	2	3	4	1			
		(3)	2	3 -	1	4			
	L	(4)	4	3	1	2			

Question No.			Questions	
14.	Picl	out wrong combination:	Epi e	
	(1)	Fe <sup>+2</sup> - Haemoglobin	(2)	Mg <sup>+2</sup> - Photosynthesis
	(3)	Se <sup>+2</sup> - Kreb's cycle	(4)	$\mathrm{Co^{+2}}$ - $\mathrm{Vitamin}\ \mathrm{B}_{12}$
15.	Blo	od is isotonic with :		
	(1)	0.16 M NaCl	(2)	Conc NaCl
	(3)	50% NaCl	(4)	30% NaCl
16.		migration of the colloidal nown as:	particles und	ler influence of an electric field
	(1)	Electrolysis	(2)	Brownian movement
	(3)	Cataphoresis	(4)	Dialysis
17.	Wh	ich of the following is corr	ect statemen	t about CCl <sub>4</sub> ?
	(1)	CCl <sub>4</sub> is used to extinguis	h the fire und	der the name Pyrene
	(2)	CCl <sub>4</sub> resist to hydrolysis of d-orbital in carbon	while leaving	g water due to non availability
98	(3)	$CCl_4 \xrightarrow{Ag NO_3} No ppt$		
	(4)	All of the above		
18.	If t	ne liquid is dispersed in so	olid medium,t	then this is called as:
	(1)	Sol	(2)	emulsion
	(3)	liquid aerosol	(4)	Gel
19.	Inv	which case, the order of a	cidic strength	is not corrected?
	(1)	$\mathrm{HI} > \mathrm{HBr} > \mathrm{HCl}$	(2)	$\mathrm{HIO_4} > \mathrm{HBrO_4} > \mathrm{HClO_4}$
	(3)	$\mathrm{HClO_4} > \mathrm{HClO_3} > \mathrm{HClO_2}$	(4)	$\mathrm{HF} > \mathrm{H_{2}O} > \mathrm{NH_{3}}$

Question No.	Questions
20.	The correct order of acidic strength of the Carboxylic acid is:
	(1) Formic acid < benzoic acid < acetic acid
	(2) Formic acid < acetic acid < benzoic acid
	(3) Acetic acid < formic acid < benzoic acid
	(4) Acetic acid < benzoic acid < formic acid
21.	Tetraethyl Lead is added to gasoline to:
	(1) Lubricate internal engine parts
	(2) Increase the life of catalytic convertor
	(3) Prevent engine a knock and improve engine performance
	(4) Increase the efficiency of gasoline combustion and improve milage
22.	The green house gas CO <sub>2</sub> is chiefly found in:
	(1) Ionosphere (2) Stratosphere
	(3) Troposphere (4) Mesosphere
23.	Acid precipitation kills the fish by causing the release of:
	(1) Carbon monoxide (2) Mercury
	(3) Aluminum ions (4) Anticoagulants
24.	Which of the following is the correct order of increase in atomic size?
	(1) $Mg < Na^+ < F^- < Al$ (2) $Na^+ < F^- < Al < Mg$
	(3) $Na^{+} < Al < Mg < F^{-}$ (4) $Na^{+} < F^{-} < Mg < Al$
25.	Which of the following is correctly matched?
	(1) Copper-bauxite (2) Iron-galena
	(3) Mercury-cinnabar (4) Lead-magnetite

Question No.		Questions	
26.	Which satellite recorded th	e presence of a	n ozone hole ?
	(1) TIROS-N	(2)	GOES
	(3) NIMBUS-7	(4)	Landstat-3
27.	Who changed the name of k for afforestation, to subabul	ubabul, one of	the popular tree species suited
	(1) Manibhai Desai	(2)	Lal Bahadur Shastri
	(3) A.K.N. Reddy	(4)	Indira Gandhi
28.	The heavy metal that has see for a type of poisoning called	en application a d Hatter's shak	s a fungicide and is responsible
	(1) Mercury	(2)	Lead
	(3) Cadmium	(4)	Arsenic
29.	The major route for widespr	ead distributio	n more persistent pesticide is:
	(1) soil	(2)	water
2,2	(3) living organism	(4)	atmosphere
30.	Who used the term 'hot dilu	te soup' for Da	rwin's warm little pond?
	(1) Oparin	(2)	Haldane
	(3) Lamarck	(4)	Wallace
31.	The bird Dodo became extin	ct because of:	
	(1) its beautiful feather	(2)	its fearlessness
	(3) its curved beak	(4)	its melodious songs
32.	Which place is often referred	d to as the vall	ey of deaths?
	(1) Cubato, Brazil	(2)	Chernobyl, USSR
	( )		

Question No.	Questions								
33.	Of the following mammals, which can survive without water for a whyear?								
	(1)	Wild Ass	(2)	Gembok					
	(3)	Addax	(4)	None of the above					
34.		ich group of plants is ployed as pollution in		rne chemicals and is therefore					
10	(1)	algae	(2)	lichens					
	(3)	fungi	(4)	bryophytes					
35.	The	Moh's scale is meas	are of a mineral's :						
	(1)	Color	(2)	Density					
	(3)	Luster	(4)	Hardness					
36.		ich technique can m ble town by operating		cion of sulphur dioxide over a e location?					
	(1)	LIDAR	(2)	Spectrophotometry					
	(T)	LIDAIL		~ Poots object of the state of					
	(3)	GC	(4)	Mass spectroscopy					
37.	(3)								
37.	(3)	GC	(4)						
37.	(3) Wh	GC at is eco-freeze?	(4) egradation						
37.	(3) Wh (1)	GC at is eco-freeze ? Halting ecological d	(4) egradation ical disaster						
37.	(3) Wh (1) (2)	at is eco-freeze?  Halting ecological d  Stopping the ecolog  Planning an ecologic	egradation ical disaster cal balance						
37.	(3) Wh (1) (2) (3) (4) Wh	at is eco-freeze?  Halting ecological d  Stopping the ecological  Planning an ecological  Stopping the manual	(4) egradation ical disaster cal balance facturing of enviro	Mass spectroscopy  nment modification weapons					
	(3) Wh (1) (2) (3) (4) Wh	at is eco-freeze?  Halting ecological d Stopping the ecolog Planning an ecologic Stopping the manual	egradation ical disaster cal balance facturing of enviro	Mass spectroscopy					

Question No.		Que	stions	
39.	Ma	nometer is a device used for me	asurin	g:
	(1)	Velocity of a point in a fluid	(2)	Pressusre at a point in a fluid
	(3)	Discharge of a fluid	(4)	None of these
40.	The	e point through which the buoys	ancy for	ce is acting is called :
* a = 1	(1)	Centre of pressure	(2)	Centre of gravity
	(3)	Centre of buoyant force	(4)	None of these
41.	Not	tch is a device used for measuri	ng the :	
X 8 8	(1)	Rate of flow through pipes		
	(2)	Rate of flow through a small c	nannel	
	(3)	Velocity through a pipe		
	(4)	Velocity through a sn. all change	nel	
42.	Rot	ameter is used for measuring:		
	(1)	Density of fluid	(2)	Velocity of fluid in pipes
	(3)	Discharge of fluids	(4)	Viscosity of fluids
43.	One	e horse power is equal to:		
	·(1)	746 watts	(2)	736 watts
	(3)	550 watts	(4)	75 watts
44.	Bea	t is equal to:		
	(1)	One oscillation	(2)	Twice the oscillation
	(3)	Half the oscillation	(4)	None of these
45.	A p	erfect gas obeys		
	(1)	Boyle's law	(2)	Charle's law
= 3 = 5	(3)	Boyle's and Charle's law	(4)	None of these

Question No.	Questions  The sum of internal energy and product of pressure and volume is called:								
46.									
= 0	(1)	Entropy	(2)	Enthalpy					
	(3)	Heat supplied	(4)	None of these					
47.	The	compression ratios for en	ngine is:						
	(1)	5 to 8	(2)	15 to 20					
	(3)	3 to 6	(4)	30 to 40					
48.	One	bar is equal to:	-						
	(1)	$1.033\mathrm{kgf/cm^2}$	(2)	$14.7  \mathrm{kgf/cm^2}$					
	(3)	$1.0197\mathrm{kgf/cm^2}$	(4)	1 kgf/cm <sup>2</sup>					
49.	Of the following gases, which one suffocates living beings even to death?								
	(1)	carbon dioxide	(2)	carbon monoxide					
	(3)	hydrogen sulphide	(4)	sulphur dioxide					
50.	A g		C, of the value	of $n = 1$ , the process is known					
	(1)	adiabatic	(2)	isothermal					
	(3)	isotropic	(4)	polytrophic					
51.	The	e radioactive isotope of hy	drogen is call	ed:					
	(1)	Radium	(2)	Protium					
	(3)	Deuterium	(4)	Tritium					
52.	The	e material used to control	l neutrons are	produced by the use of:					
	(1)	Heavy water	(2)	Paraffin					
	(3)	Graphite	(4)	Thorium					

Question No.		Questions									
53.	Pol	yther	ne is po	lymer o	f :						
	(1)		utane		9.		(2)	Ethylene		i.	
	(3)	Vin	yl chlor	ide			(4)	Propylene	)		
54.	The	e foll	owing tion of v	residua vater	al chlor	ine c	ompo	unds are f	ormed	during	the
	(a)	NH,	Cl				(b)	NHCl,	9 7 9	e <sup>1)</sup>	
	(c)	HO	Cl				(d)	OCI			
	(1)	b, a,	, c, d				(2)	a, b, d, c			
	(3)	a, b,	, c, d				(4)	b, a, d, c			
55.	Mat	tch th	e follow	ving:	14	·, .					
	Set	A				Set	В				7.
	i Recarbonation					1	1 Activated carbon				
	ii	Chlorination				2	Tri	Trihalomethanes			
	iii	Tast	te & odo	ur	1	3	Lin	Lime soda process			
	iv	Temperature inversion				4	Smog				
	(1)	i–2	ii–1	iii–3	iv-4		(2)	i–3 ii–2	iii–1	iv-4	
	(3)	i-1	ii–3	iii–4	iv-2		(4)	i-4 ii-3	iii–2	iv-4	
56.	In s cont	ent o	ry land f the so	fill, dec lid wast	omposit te goes o	ion an	nd ch	emical chan lential chan	ges witl	nin orga	anic l fill
	(a)	Tem	peratui	e chang	ges with	in lan	d fill	E 0.7			
	(b)	Prod	luct of g	gases lil	ke H <sub>2</sub> S, (	co, c	0, &	CH		*	
	(c)		riction				2	4			
	(d)	Prod	uction	of other	gases li	ke S	), an	d NO			
	Whi				nts are			2			
	(1)		c and d			*	(2)	a, b and c			
	(3)	a and	d b				(4)	b and c		3	

Question No.				Qu	estions		
57.	Meth	ane formers	are:				= 2
	(1)	Obligate aer	obes		(2)	Facultative bacteria	
	(3)	Obligate and	erobes		(4)	None of the above	
58.	Index	of pollution	n in case	of strea	m is:		
	(1)	Color and Tu	urbidity		(2)	DO and BOD	١.
	(3)	Flora and Fa	iuna		(4)	All of the above	
59.	The r	naximum da	amage to	the "Ta	j Mahal	" is because of the gas :	
	(1)	CO <sub>2</sub>			(2)	CO	
	(3)	SO <sub>2</sub>			(4)	All of the above	
60.	Matc	h the follow	ing:				-
	Set A	re that a second			Set B		
4 2 6 2	i	Acidity			I	Particulate matter	
	ii	Alum			II ·	Oils and grease	
8 Y	iii	Cyclone			III	Flocculation	
7	iv	Skimming	tank		IV	Carbon dioxide	
	(1)	i–III ii–I	iii–IV	iv–II	(2)	i–IV ii–III iii–I iv–I	I
, j	(3)	i–IV ii–II	iii–III	iv–I	(4)	i–II ii–III iii–IV iv–I	
61.		an average l a per day as		ity, solic	l waste	generated may be assesse	d pe
	(1)	0.2 kg			(2)	$0.4\mathrm{kg}$	
	(3)	1.0 Kg			(4)	$2.0\mathrm{kg}$	

Question No.	Questions	
62.	At break point of chlorination:	
	(1) Chlorine is used to oxidize	
	(2) Residual chlorine is zero	
r ea	(3) Residual chlorine is maximum	
In 11	(4) Residual chlorine reappears	
63.	The correct statement of comparison of ultimate Booxygen demand (THOD) and 5 day BOD is:	OD, COD, Theoretical
7412	(1) $BOD\mu > COD > ThOD > BOD_5$	
	(2) $COD > ThOD > BOD_{\mu} > BOD_{5}$	
	(3) ThOD > COD > BOD $\mu$ > BOD <sub>5</sub>	
	(4) $COD > EOD_{\mu} > BOD_{\delta} > ThOD$	
64.	The alkalinity of a water sample is $80 \text{ mg/L}$ as $CaCO$ of the water sample is $112 \text{ mg/L}$ as $CaCO_3$ . What will non-carbonate (in mg/L as $CaCO_3$ )?	
	(1) 32 (2) 192	
	(3) 152 (4) 114	
65.	If 20 lb of 10% strength solution is mixed with 30 lb o What is the percent strength of the mixture?	f 1% strength solution.
	(1) 4.6 (2) 6.6	
	(3) 46 (4) 2.6	
66.	Which of the instrument is based on Lambert Beer	's law?
	(1) Spectrophotometer (2) GLC	
	(3) HPLC (4) AAS	
		/0

Question No.		Questions	
67.	The chlorine dosage for water is 30 minute contact time is four demand (in mg/L)?		
	(1) 2.0	(2)	1.4
E 9	(3) 2.7	(4)	3.4
68.	Which value of coefficient of coefficient x and y variables?	orrelation (1	r) shows strongest association
	(1) -0.33	(2)	-0.950
- 20	(3) 0.565	(4)	0.750
69.	Permissible limits of SO <sub>2</sub> in res	idential are	as (24h basis) as per NAAQMS
- 4	(1) 60 mg/m <sup>3</sup>	(2)	$120 \mathrm{mg/m^3}$
	(3) 80 mg/m <sup>3</sup>	(4)	$30 \text{ mg/m}^3$
70.	Which of the following industrie from the government?	es does not r	equire environmental clearance
	(1) Cement industry	(2)	Paper and pulp industry
1000	(3) Sugar industry	(4)	Distillery
71.	Concentration of CO in vehicu	lar exhaust	is approximately:
	(1) Below 20%	(2)	35%
	(3) 50%	(4)	Above 70%
72.	The size of the RSPM is:		
	(1) Below 10 μm	(2)	15–20 μm
	(3) 23 μm	(4)	above 25 μm

Question No.	Questions
73.	The reliability of Gaussian Plume model is:
	(1) 98%     (2) 95%       (3) 70%     (4) 50%
74.	In the ECD of gas chromatograph the electrons are:
	(1) Captured by the determinant species
	(2) Generated by the determinant species
1 - 5 - 2	(3) Generated by nitrogen gas
	(4) None of the above
75.	Which prevent the entry of foul gas and allows ventilation?
	(1) Intercepting trap (2) Fresh air inlet
	(3) Gully trap (4) Flushing cistern
76.	Electrostatic precipitators are used as pollution control device for th removal of:
	(1) SO <sub>2</sub>
	(2) NOx
	(3) Suspended particulate matter
	(4) Volatile fatty acids
77.	Ozone layer in the upper atmosphere is getting depleted owing to its reaction with pollutant like:
	(1) Hydrogen peroxide (2) Carbon monoxide
	(3) Cholofluoro carbon (4) Volatile fatty acids

Question	
No.	Questions
78.	Choose the correct statement in the following:
 	The rate of 5 day BOD exerted at any time is
2 · · · · · · · · · · · · · · · · · · ·	(a) Directly proportional to BOD satisfied
	(b) Directly proportional to BOD remaining
	(c) Inversely proportional to BOD remaining
	(d) Inversely proportional to BOD satisfied
	Which of these statements are correct?
	(1) a, b, c and d (2) a, b and c
	(3) a and d (4) b and c
79.	Which of the following pairs are correctly matched?
	(1) SPM - a. Blood hemoglobin
- 1	(2) NO - b. Vegetation
	(3) CO - c. Respiratory system
	(4) $SO_2$ - d. Building materials
80.	Which of the following pairs are correctly matched?
	(1) Reverberation time a. Time required to reduce noise by 60dB
	(2) NIPTS  b. Responsible for permanent hearing loss
48 - 28	(3) Sound foci  c. Formed when sound waves are reflected from the convex surface
	(4) TTS  d. Responsible for temporary hearing loss

Question No.	Questions
81.	Match list I (Treatment Units) with List II (Type of process) and select the correct answer using the codes given below the lists:
	List I List II
	(Treatment Units) (Type of process)
	a. Trickling filter 1. Symbiotic
	b. Activated sludge process 2. Extended aeration
	c. Oxidation ditch 3. Suspended growth
	d. Oxidation pond 4. Attached growth
	Codes:
	A B C D A B C D
	(1) 3 4 2 1 (2) 4 3 1 2
2	(3) 3 4 1 2 (4) 4 3 2 1
82.	Function of algae in oxidation pond is to:
	(1) Provide a mat over surface of the oxidation pond so as to preven evaporation of water
	(2) Provide oxygen for bacteria to degrade organic matter
	(3) Provide a greenish appearance to the pond
	(4) Prevent the odour nuisance
83.	When sewage enters a following river, the rapid depletion of dissolve oxygen is due to:
	(1) Change in temperature of the river
8	(2) The suspended particles in the river and waste
	(3) Respiratory activity of aquatic plants
	(4) Microbial activity

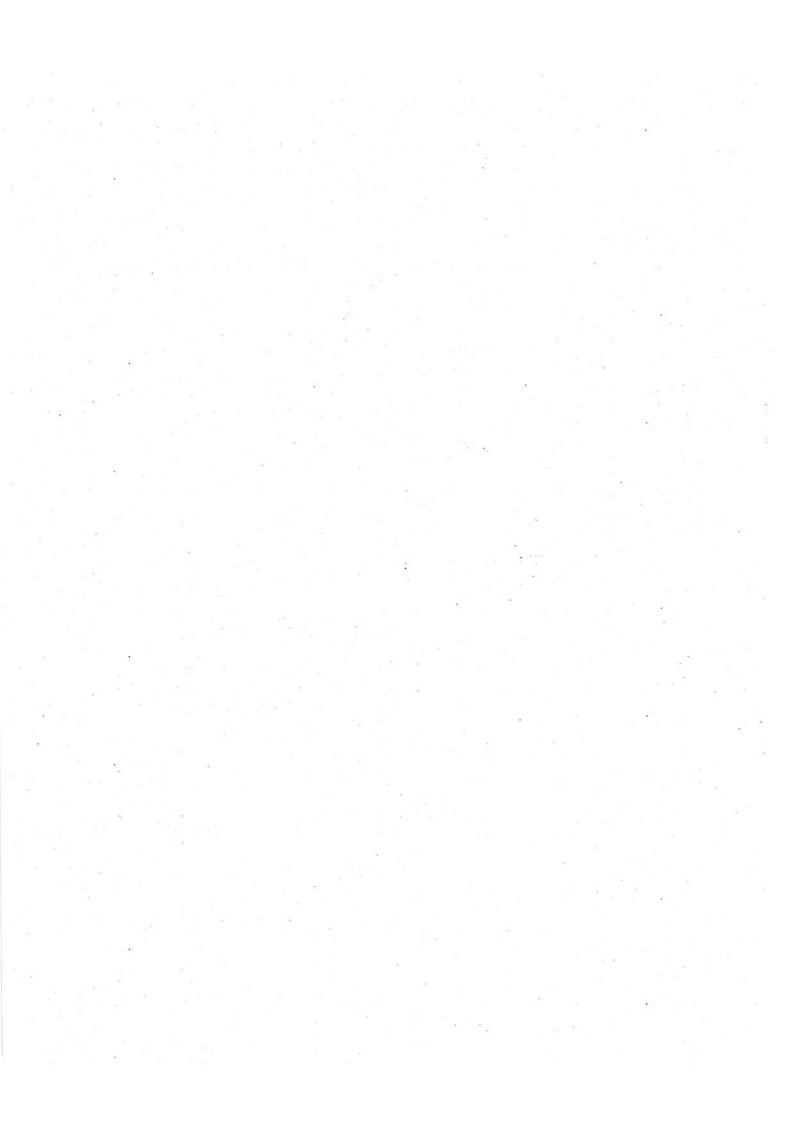
Question No.	Questions
84.	Which of the pollutant or pairs of pollutants is formed due to photochemical
	reactions?
*	(1) CO alone (2) O <sub>3</sub> and PAN
	(3) PAN and NH <sub>3</sub> (4) NH <sub>3</sub> and CO
85.	Consider the following pair of the treatment units and impurities removed:
	(a) Grit chamber Sand and silt
	(b) Detritus tank Organic matter
at .	(c) Primary sedimentation tank Suspended impurities
	(d) Aeration tank of activated sludge process Oil and grease
81	Which of the pairs are correctly matched?
	(1) a and b (2) a, b, c and d
	(3) b, c and d (4) a and c
86.	At an incubation temperature of 20°C, if initial DO and final DO values after 5 days incubation period on a 2% sample of sewage, are 8.5 mg/L and 5.5 mg/L, respectively. Then the BOD will be:
	(1) 50 mg/L (2) 150 mg/L
*	(3) 250 mg/L (4) 350 mg/L
87.	The trap used for water closet is called:
	(1) Gully trap (2) p-type
	(3) Intercepting (4) Anti-siphon trap

Question No.		uestions	
88.	Match List I (Nature of the soli connected with its removal) and given below the lists:	d) with Laselect the	ist II (Unit operation or process e correct answer using the codes
	List I		List II
	a. Dissolved solids	1.	Sedimentation
	b. Colloidal solids	2.	Reverse osmosis
	c. Volatile solids	3.	Coagulation
	d. Settleable solids	4.	Digestion
£1	Codes:		
	A B C D		A B C D
	(1) 2 3 4 1	(2)	3 2 4 1
	(3) 2 3 1 4	(4)	3 2 1 4
89.	Which of the materials are used and leachate movements?	as landfil	l sealants for the control of gas
	(a) Lime	(b)	Sand
	(c) Bentonite	(d)	Fly ash
	(e) Butyl rubber		
, r 1 -	Select the correct answer using	the codes	given below:
	(1) a, b and c	(2)	d and e
	(3) c and e	(4)	a, b and d
90.	Which of the following air pollute smog?	ints is/are	e responsible for photochemical
	(a) Oxides of nitrogen	(b)	Ozone
	(c) Unburnt hydrocarbons	(d)	Carbon monoxide
	Code:	= 2	
	(1) a and b	(2)	c and d
	(3) b and d	(4)	

Question No.	2	8 , ==	: : : : : : :	Quest	ions			,		-
91.		ch List I with List on below the lists :	II and	select	the co	orrect	answ	er usi	ng the	codes
	- 	List I	* * .			List	II			
	a.	Sludge disposal			1.	Seed	ling			
	b.	Sludge digestion			2.	Biof	ilters			
	c.	Aerobic action			3.	Lag	goning	3		
- 8	d.	Recirculation			4.	Con	tact b	ed		
	Cod	es:		i i				: :		
		A B C D				A	В	C	D	
	(1)	3 1 4 2			(2)	3	1	2	4	
	(3)	1 3 2 4			(4).	1	3	4	2	
92.	Rin	glemann's scale is	used to	:						
	(1)	Measure CO							¥.	
	(2)	${\rm Measure\ CO_2}$				) 9 ) 9				
* * *	(3)	Grade density of	smoke							
n så	(4)	Grade automobile	exhau	st gas				= 2 *		
93.	Wh	ich of the following	pair is	not co	rrectly	y mate	ched	?	Alles John	· g is
	(1)	BOD	20	Str	ength					
	(2)	Methane		Pro	duct o	f anae	erobic	decon	npositio	n
A.	(3)	COD		Bio	degra	dabilit	y of w	aste w	vater	
	(4)	Nitrate		Me	thamo	globin	emia			

Question No.		3			Questions		25	23		•
94.	The	e atmospher rmal layers.	e exten	ds up to	height of 10	0,000	km. It	is div	ided	into fou
- 1	(a)	Mesospher	e		(b)	St	ratosp	here		
	. (c)	Thermosph	nere		(d)	Tr	- opospł	iere		
3 (4) 3 (4)	The upv	e correct seq vard is	uence	of these	layers star	ting	from t	he su	face	of eart
	(1)	a, d, a, c			(2)	<b>d</b> , 1	b, a, c			
	(3)	d, b, c, a			(4)	b, 0	d, c, a			
95.	Coa	l based therr	nal pov	ver plant	stations po	llute	the atı	nosph	ere b	v adding
	(1)	NOx and So			(2)		x, SO			
12	(3)	NOx, SO <sub>2</sub> , S	SPM ar	C) br	(4)		x, SPN			
96.	Mat give	ch List I wi n below the	th List lists :	II and s	select the co	orrec	t answ	er usi	ng t	he code
		List I				Lis	t II			. 2
		(Cause)				(Ef	fect)			
	a.	Carbon mor	oxide		1.	Aci	d rain			
	b.	Carbon diox	ide		2.	Exp	olosion			9
	c.	Methane			3.		hyxiat			
	d.	Sulphur dio	xide		4.	Gre	en hou	ıse eff	ect	
	Code	es:								
	6	A B C	D			A	В	C	D	
	(1)	2 3 1	4		(2)	3	4	2	1	
	(3)	1 3 4	2		(4)	4	2	1	3	* p

Question No.	Questions
97.	Choose the correct answer:
	The stabilization of sewage in oxidation pond is due to action of:
	(1) Aerobic and anaerobic bacteria
	(2) Algae and bacteria
	(3) Organic and inorganic compound
	(4) Algae and protozoa
98.	Inversion is characterized by:
	(1) Upper cold and lower warm layer
75	(2) Upper warm and lower cold layer
	(3) Both of the above
	(4) None of these
99.	Asbestos 'Silent Killer' can cause death of worker due to:
* -	(1) Heart attack
	(2) Lung cancer
	(3) Kidney failure
*	(4) Brain damage
100.	Which is the first indoor pollutant of which the masses become aware?
	(1) Carbon dioxide
	(2) Formaldehyde
	(3) Radon
	(4) Ozone



Question No.				Que	stions	at many	
1.			in is global o				environmental
	(a)		acid pollutant cipitation in ot			ry may be de	eposited as acid
	(b)	Acid	<b>l rain a</b> ffects b	oth aquatic	system as v	well vegetat	ion
	(c)	It h	as distinct effe	ect on soil mi	icrobiology	and chemis	stry
		Sele	ect the correct	answer usin	g the codes	s given belo	w:
		(1)	a, b and c	(2)	a and b		
		(3)	a and c	(4)	b and c		
2.				ist II and se	lect the cor	rect answe	r from the codes
2.	Ma	tch th	ne List I and L	ist II and se	lect the cor	rect answer	r from the codes
2.		en be	ne List I and L low the lists : I (pollutants)	List II (Im	pacts)		
2.		en be	low the lists:	List II (Im	pacts) eyes and no	se, create bro	wn haze, causes
2.	give	List Sulp	low the lists :  I (pollutants)	List II (Im  1. Irritate visible  2. Causes	eyes and not leaf damage headaches,	se, create bro , stunts plant dizziness and	own haze, causes growth nausea, reduces
2.	give	List Sulp	I (pollutants) hur oxides ogen oxides	List II (Im  1. Irritate visible  2. Causes oxygen	eyes and not leaf damage headaches, level in bloc	se, create bro stunts plant dizziness and od, impairs m	own haze, causes growth nausea, reduces nental processes
2.	give A B	List Sulp Nitro	low the lists :  I (pollutants) hur oxides	List II (Im  1. Irritate visible  2. Causes oxygen  3. Causes 4. Corrod	eyes and not leaf damage, headaches, level in bloc cancer, retailes metal, ca	se, create bro stunts plant dizziness and od, impairs m	own haze, causes growth nausea, reduces nental processes wth and chronic leaf
2.	A B C D	List Sulp Nitro	I (pollutants) hur oxides ogen oxides on monoxide	List II (Im  1. Irritate visible  2. Causes oxygen  3. Causes 4. Corrod	eyes and not leaf damage, headaches, level in bloc cancer, retailes metal, ca	se, create bro , stunts plant dizziness and od, impairs m rds plant grov nuses acute a	own haze, causes growth nausea, reduces nental processes wth and chronic leaf
2.	A B C D	List Sulp Nitro Carb	I (pollutants) hur oxides ogen oxides on monoxide	List II (Im  1. Irritate visible  2. Causes oxygen  3. Causes 4. Corrod	eyes and not leaf damage, headaches, level in bloc cancer, retailes metal, ca	se, create bro , stunts plant dizziness and od, impairs m rds plant grov nuses acute a	own haze, causes growth nausea, reduces nental processes wth and chronic leaf
2.	B C D Coo	List Sulp Nitro Carb	I (pollutants) hur oxides ogen oxides on monoxide rocarbon	List II (Im  1. Irritate visible  2. Causes oxygen  3. Causes 4. Corrod injury,	eyes and not leaf damage headaches, level in bloc cancer, retai es metal, ca attacks a wice	se, create bro , stunts plant dizziness and od, impairs m rds plant grov nuses acute a de variety of	own haze, causes growth nausea, reduces nental processes wth and chronic leaf
2.	B C D Coo	List Sulp Nitro Carb Hyd	I (pollutants) hur oxides ogen oxides oon monoxide rocarbon  A 4 2	List II (Im  1. Irritate visible  2. Causes oxygen  3. Causes 4. Corrod injury,	eyes and not leaf damage headaches, level in bloc cancer, retailes metal, ca attacks a wide	se, create bro , stunts plant dizziness and od, impairs m rds plant grov nuses acute a de variety of	own haze, causes growth nausea, reduces nental processes wth and chronic leaf
2.	B C D Coo	List Sulp Nitro Carb Hyd	I (pollutants) hur oxides ogen oxides on monoxide rocarbon  A 4	List II (Im  1. Irritate visible  2. Causes oxygen  3. Causes 4. Corrod injury,  B  1	eyes and not leaf damage, headaches, level in bloc cancer, retartes metal, cantacks a wide	se, create bro stunts plant dizziness and od, impairs m rds plant grov nuses acute a de variety of	own haze, causes growth nausea, reduces nental processes wth and chronic leaf

Question No.	-			Qu	estions	= 0	
3.			e List I and ow the lists		elect the	correct answer	r from the codes
			(water nminant)	List II (In	npacts)		
	Α	Patho	gens	1. Lead to	the grow	th of undesired a	quatic life
	В	Heav	y metals	2. Transn	nit commu	nicable disease	18
	C	Nutri	ents	3. Are co	mmon in l	andfill leachate a	and waste water
	D	Susp	ended	4. Lead to	the devel	opment of sludg	e deposits
	Cod	les :	26 E	# 1 <sup>2</sup>	5 E	a a set y	e e
			A	В	C	D	
		(1)	4	3	2	1	]
		(2)	2	3	4	1	
		(3)	2	3	1	4	7 %
-		(4)	4	3	. 1	•   2	3 9 9 3
						1 61 51.	
4.	Pic	k out	wrong comb	ination:			
	(1)	Fe <sup>+2</sup>	- Haemoglo	bin	(2)	Mg <sup>+2</sup> - Photo	synthesis
	(3)	Se <sup>+2</sup>	- Kreb's cyc	le	(4)	Co <sup>+2</sup> - Vitam	in $B_{12}$
5.	Blo	od is	isotonic with	1:			
	(1)	0.16	3 M NaCl		(2)	Conc NaCl	
	(3)	50%	NaCl		(4)	30% NaCl	
6.		e migr		colloidal par	ticles und	der influence o	f an electric field
	(1)	Elec	ctrolysis		(2)	Brownian m	ovement
* .	(3)	Cat	aphoresis		(4)	Dialysis	

Question No.	K0.		_ 3				Ques	tions						
7.	Whi	hich of the following is correct statement about CCl <sub>4</sub> ?												
	(1)	AND THE PARTY OF T												
# (40) *	(2)	of d	l <sub>4</sub> resis l-orbita	st to al i	o hydr n carb	olysis on	while !	eavin	g wat	er due t	to noi	n av	aila	bility
	(3)	CC	l <sub>4</sub> — Ag	NO <sub>3</sub>	→ No	ppt								
2.57	(4)	4	of the										32	
8.	If th	ne lic	quid is	dis	sperse	d in so	olid me	dium,	then t	his is c	alled	as:		
-	(1)	Sol						(2)	emı	alsion				
	(3)	liqu	uid aer	oso	$\mathbf{o}1$			(4)	Gel					8
9.	In v	vhic	h case,	th	e orde	r of ac	cidic st	rengtl	n is no	t corre	cted '	?		
8	(1)		> HBr					(2)	HIC	$D_4 > HB$	3rO <sub>4</sub> >	> H(	ClO4	
	(3)	HC	10 <sub>4</sub> > F	ICI	$O_3 > H$	$[ClO_2]$	=	(4)	HF	$> H_2O$	> NH	$I_3$		
10.	The	cor	rect or	der	of aci	dic st	rength	of the	Carb	oxylic a	acid i	s:	=	5.0
	(1)	1 1000 TO 10												
	(2)		- 1				l < ben:							13.00
	(3)	*1					 benz							
	(4)	Ace	etic aci	id <	benzo	oic aci	d < for	nic ac	eid					Nº
11.	Mat	tch I	List I	wit.	h List	II and	d selec	the	correc	t answe	er us	ing	the	codes
	give	en be	elow th	ie l	ists:					10				E SE
6 to 10 We		Lis	t I	e i					Lis	t II				
	a.	Slu	idge di	spc	sal			1.	See	ding				
	b.	Slu	ıdge di	ges	stion			2.	Bio	filters				
	c.	Ae	robic a	cti	on			3.	Lag	goning				
	d.	Rec	circula	tio	n			4.	Cor	ntact be	ed			
*	Cod	les :						- 1						
		Α	В -	C	D				A	В	C	]	D	
	(1)	3	1 4	4	2			(2)	3	1	2	_	1	
	(3)	1	3	2	4			(4)	1	3	4	2	2	

Question No.		Questions
12.	Ringlemann's scale is used to:	
	(1) Measure CO	
	(2) Measure CO <sub>2</sub>	
	(3) Grade density of smoke	
	(4) Grade automobile exhaust	gas
13.	Which of the following pair is r	not correctly matched ?
	(1) BOD	Strength
e a see	(2) Methane	Product of anaerobic decomposition
	(3) COD	Biodegradability of waste water
	(4) Nitrate	Methamoglobinemia
14.	The atmosphere extends up to thermal layers.	height of 10,000 km. It is divided into four
	(a) Mesosphere	(b) Stratosphere
	(c) Thermosphere	(d) Troposphere
	The correct sequence of these upward is	layers starting from the surface of earth
1 =	(1) a, d, a, c	(2) d, b, a, c
	(3) d, b, c, a	(4) b, d, c, a
15.	Coal based thermal power plan	t stations pollute the atmosphere by adding
	(1) NOx and SOx	(2) NOx, SO <sub>2</sub> and SPM
	(3) NOx, SO <sub>2</sub> , SPM and CO	(4) NOx, SPM and CO

uestion No.		Questions		0 + <sub>3</sub>			
16.	Match List I with List II and given below the lists:	select the co	orrect	answe	er usin	g the o	codes
-	List I		List	II .			
	(Cause)		(Effe	ect)			
	a. Carbon monoxide	1.	Acid	rain			
	b. Carbon dioxide	2.	Exp	losion			
	c. Methane	3.	Aspl	nyxiat	ion		
e w	d. Sulphur dioxide	4.	Gree	en hou	use eff	ect	
	Codes:						
	A B C D		Α	В	C	D	
	(1) 2 3 1 4	(2)	3	4	2	1	
	(3) 1 3 4 2	(4)	4	2	1	3	
17.	Choose the correct answer:						
	The stabilization of sewage in	oxidation p	ond is	due t	o actio	n of:	*
	(1) Aerobic and anaerobic ba	acteria		200			
	(2) Algae and bacteria						
	(3) Organic and inorganic co	ompound					
	(4) Algae and protozoa						
18.	Inversion is characterized by	<i>7</i> :	10	F .	- **		
	(1) Upper cold and lower wa	arm layer					, =
54 p*	(2) Upper warm and lower	cold layer					
	(3) Both of the above						
	(4) None of these						

Question No.		Ques	stions	
19.	Asb	estos 'Silent Killer' can cause d	eath of	worker due to:
	(1)	Heart attack	13 3360 11 13	
2 -	(2)	Lung cancer		
	(3)	Kidney failure		
	(4)	Brain damage		
20.	Whi	ch is the first indoor pollutant	of whic	h the masses become aware?
	(1)	Carbon dioxide		
	(2)	Formaldehyde		
	(3)	Radon		
	(4)	Ozone		
21.	Con	centration of CO in vehicular ex	xhaust	is approximately :
	(1)	Below 20%	(2)	35%
	(3)	50%	(4)	Above 70%
22.	The	size of the RSPM is:		
	(1)	Below 10 μm	(2)	$15$ – $20\mu m$
	(3)	$23\mu m$	(4)	above 25 μm
23.	The	reliability of Gaussian Plume r	nodel is	3:
2	(1)	98%	(2)	95%
2 2	(3)	70%	(4)	50%
24.	· In t	he ECD of gas chromatograph	the elec	ctrons are :
	(1)	Captured by the determinant	species	
	(2)	Generated by the determinan	t specie	es
	(3)	Generated by nitrogen gas		
	(4)	None of the above		

Question No.		* *	Questions	
25.	Whi	ich prevent the entry of fou	ıl gas and all	ows ventilation ?
	(1)	Intercepting trap	(2)	Fresh air inlet
	(3)	Gully trap	(4)	Flushing cistern
26.		ctrostatic precipitators are oval of:	e used as po	llution control device for the
	(1)	$SO_2$		
	(2)	NOx		
	(3)	Suspended particulate m	atter	
2	(4)	Volatile fatty acids		
27.		ne layer in the upper atretion with pollutant like:	nosphere is	getting depleted owing to its
	(1)	Hydrogen peroxide	(2)	Carbon monoxide
	(3)	Cholofluoro carbon	(4)	Volatile fatty acids
28.	Cho	ose the correct statement	in the follow	ing:
	The	rate of 5 day BOD exerted	l at any time	eis
, d,	(a)	Directly proportional to H	OD satisfied	1 5
	(b)	Directly proportional to E	OD remaini	ng
	(c)	Inversely proportional to	BOD remain	ning
	(d)	Inversely proportional to	BOD satisfie	ed
	Wh	ich of these statements ar	e correct ?	
	(1)	a, b, c and d	(2)	a, b and c
	(3)	a and d	(4)	b and c

Question No.	Questions					
29.	Which of the following pairs are correctly matched?					
- ×	(1) SPM - a. Blood hemoglobin					
	(2) NO - b. Vegetation					
	(3) CO - c. Respiratory system					
	(4) SO <sub>2</sub> - d. Building materials					
30.	Which of the following pairs are correctly matched?					
2.8	(1) Reverberation time a. Time required to reduce noise by 60dB					
9 2	(2) NIPTS b. Responsible for permanent hearing loss					
	(3) Sound fo i c. Formed when sound waves are reflected from the convex surface					
	(4) TTS d. Responsible for temporary hearing loss					
31.	The radioactive isotope of hydrogen is called:					
	(1) Radium (2) Protium					
	(3) Deuterium (4) Tritium					
32.	The material used to control neutrons are produced by the use of:					
8 8	(1) Heavy water (2) Paraffin					
	(3) Graphite (4) Thorium					
33.	Polythene is polymer of:					
	(1) Isobutane (2) Ethylene					
	(3) Vinyl chloride (4) Propylene					

Question No.	Q	uesti	ons						
34.	The following residual chloring chlorination of water	ne co	mpo	unds a	re for	med di	uring	the	
-91	(a) NH <sub>3</sub> Cl		(b)	NHC	$l_2$				
	(c) HOCl		(d)	OCl					
	(1) b, a, c, d		(2)	a, b,	d, c				
	(3) a, b, c, d		(4)	b, a,	d, c		\$		
35.	Match the following:								
	Set A	Set	В			74			
	i Recarbonation	1	Act	ivated c	arbon				
	ii Chlorination	2	Tri	halomet	hanes	3. 7			
	iii Taste & odour	3	Lin	ne soda	process	3			
	iv Temperature inversion	4	4 Smog						
	(1) i–2 ii–1 iii–3 iv–4		(2)	i–3	ii–2	iii–1	iv-4		
<u></u>	(3) i–1 ii–3 iii–4 iv–2		(4)		ii–3	iii–2	iv-1		
36.	In sanitary landfill, decomposite content of the solid waste goes of can be								
	(a) Temperature changes with								
	(b) Product of gases like H <sub>2</sub> S,	CO, (	CO <sub>2</sub> &	≿ CH₄					
	(c) Destruction of pathogens								
	(d) Production of other gases l	20 20 20	270 gra	$nd NO_2$					
	Which of these statements are	corre		•	•				
	(1) a, b, c and d		(2)		and c				
	(3) a and b		(4)	b an	id c				
37.	Methane formers are:								
	(1) Obligate aerobes		(2)			re bacte			
	(3) Obligate anaerobes		(4)	Non	e of tl	ne above	9		

Question No.				Que	stions	
38.	Index	of pollution i	n case o	of stream	n is:	
	(1) C	olor and Turl	bidity		(2)	DO and BOD
	(3) F	lora and Fau	na		(4)	All of the above
39.	The m	aximum dan	nage to	the "Taj	Mahal"	is because of the gas:
	(1) C	$O_2$			(2)	CO
	(3) S	O <sub>2</sub>	* **		(4)	All of the above
40.	Match	the followin	g:			
*	Set A				Set B	
	i	Acidity			I	Particulate matter
+	ii	Alum	F 8 -	0.0 1.9	II	Oils and grease
* *	iii	Cyclone			III	Flocculation
	iv	Skimming tar	nk		IV	Carbon dioxide
	(1) i-	-III ii–I	iii–IV	iv–II	(2)	i–IV ii–III iii–I iv–II
14,5	(3) i-	-IV ii–II	iii–III	iv–I	(4)	i–II ii–III iii–IV iv–I
41.	The b	ird Dodo bec	ame ext	inct bec	ause of	:
= 2 8	(1) it	ts beautiful f	eather		(2)	its fearlessness
	(3) if	ts curved bea	ık		(4)	its melodious songs
42.	Which	n place is often	en refer	red to a	s the va	alley of deaths?
	(1)	Cubato, Brazi	1		(2)	Chernobyl, USSR
	(3) F	Palo alto, US	A		(4)	Nainital, India
4 4 1		g Janes Sage in 1815	e dyn i			

Question No.		Q	uestions	
43.	Of t		h can sur	vive without water for a whole
	(1)	Wild Ass	(2)	Gembok
	(3)	Addax	(4)	None of the above
44.		ch group of plants is sensitively loyed as pollution indicator		rne chemicals and is therefore
	(1)	algae	(2)	lichens
	(3)	fungi	(4)	bryophytes
45.	The	Moh's scale is measure of a	mineral's	• To 2
	(1)	Color	(2)	Density
58	(3)	Luster	(4)	Hardness
46.		ich technique can map the o		tion of sulphur dioxide over a e location?
22				
9.33	(1)	LIDAR	(2)	Spectrophotometry
61 SS	(1)	LIDAR GC	(2) (4)	Spectrophotometry Mass spectroscopy
47.	(3)			
47.	(3)	GC	(4)	
47.	(3) Wh	GC at is eco-freeze?	(4) ion	
47.	(3) Wh	GC at is eco-freeze? Halting ecological degradat	(4)	
47.	(3) Wh (1) (2)	at is eco-freeze?  Halting ecological degradat  Stopping the ecological disa  Planning an ecological balan	(4)	
47.	(3) Wh (1) (2) (3) (4) Wh	GC at is eco-freeze? Halting ecological degradat Stopping the ecological disa Planning an ecological balar Stopping the manufacturin	(4) ion aster ace g of enviro	Mass spectroscopy
	(3) Wh (1) (2) (3) (4) Wh	at is eco-freeze?  Halting ecological degradate  Stopping the ecological disa  Planning an ecological balar  Stopping the manufacturin  en a falling body has attained	(4) ion aster ace g of enviro	Mass spectroscopy

Question	Que	stions	
No.			9 0 2 9
49.	Manometer is a device used for me	asuring	
	(1) Velocity of a point in a fluid	(2)	Pressusre at a point in a fluid
14.	(3) Discharge of a fluid	(4)	None of these
50.	The point through which the buoys	ncy for	ce is acting is called :
	(1) Centre of pressure	(2)	Centre of gravity
	(3) Centre of buoyant force	(4)	None of these
51.	Tetraethyl Lead is added to gasoli	ne to :	
	(1) Lubricate internal engine par	ts	
	(2) Increase the life of catalytic c	onverto	r
	(3) Prevent engine a knock and in	nprove	engine performance
	(4) Increase the efficiency of gase	line cor	nbustion and improve milage
52.	The green house gas CO <sub>2</sub> is chiefly	found i	n:
	(1) Ionosphere	(2)	Stratosphere
	(3) Troposphere	(4)	Mesosphere
53.	Acid precipitation kills the fish by	causing	g the release of :
	(1) Carbon monoxide	(2)	Mercury
	(3) Aluminum ions	(4)	Anticoagulants
54.	Which of the following is the corre	ect orde	r of increase in atomic size?
	(1) $Mg < Na^+ < F^- < Al$	(2)	$Na^+ < F^- < Al < Mg$
	(3) $Na^+ < Al < Mg < F^-$	(4)	$Na^+ < F^- < Mg < Al$
55.	Which of the following is correctly	match	ed?
	(1) Copper-bauxite	(2)	Iron-galena
	(3) Mercury-cinnabar	(4)	Lead-magnetite
	Fig. 1. No. 1988 and the least of the least		

Question No.	6	Questions	
56.	Which satellite recorded the pr	esence of a	n ozone hole ?
	(1) TIROS-N	(2)	GOES
	(3) NIMBUS-7	(4)	Landstat-3
57.	Who changed the name of kuba for afforestation, to subabul?	bul, one of	the popular tree species suited
	(1) Manibhai Desai	(2)	Lal Bahadur Shastri
	(3) A.K.N. Reddy	(4)	Indira Gandhi
58.	The heavy metal that has seen a for a type of poisoning called H		
5 . 9	(1) Mercury	(2)	Lead
	(3) Cadmium	(4)	Arsenic
59.	The major route for widespread	d distribution	on more persistent pesticide is:
	(1) soil	(2)	water
= 1	(3) living organism	(4)	atmosphere
60.	Who used the term 'hot dilute	soup' for Da	arwin's warm little pond?
	(1) Oparin	(2)	Haldane
	(3) Lamarck	(4)	Wallace
61.	Notch is a device used for mea	suring the	1
	(1) Rate of flow through pipe	S	
	(2) Rate of flow through a sm	all channel	
	(3) Velocity through a pipe		
	(4) Velocity through a small of	channel	

Question No.	Qı	iestions	
62.	Rotameter is used for measuring	:	
	(1) Density of fluid	(2)	Velocity of fluid in pipes
	(3) Discharge of fluids	(4)	Viscosity of fluids
63.	One horse power is equal to:		
	(1) 746 watts	(2)	736 watts
2000 E	(3) 550 watts	(4)	75 watts
64.	Beat is equal to:		
	(1) One oscillation	(2)	Twice the oscillation
	(3) Half the oscillation	(4)	None of these
65.	A perfect gas obeys		
	(1) Boyle's law	(2)	Charle's law
4 %	(3) Boyle's and Charle's law	(4)	None of these
66.	The sum of internal energy at called:	nd produ	ct of pressure and volume i
	(1) Entropy	(2)	Enthalpy
iw,	(3) Heat supplied	(4)	None of these
67.	The compression ratios for engi	ne is :	
	(1) 5 to 8	(2)	15 to 20
	(3) 3 to 6	(4)	30 to 40
68.	One bar is equal to:	14 KL IS	
	(1) 1.033 kgf/cm <sup>2</sup>	(2)	$14.7  \mathrm{kgf/cm^2}$
	(3) 1.0197 kgf/cm <sup>2</sup>	(4)	1 kgf/cm <sup>2</sup>

Question No.	Questions
69.	Of the following gases, which one suffocates living beings even to death?
100	(1) carbon dioxide (2) carbon monoxide
	(3) hydrogen sulphide (4) sulphur dioxide
70.	A gas follows the law $PVn = C$ , of the value of $n = 1$ , the process is known as:
	(1) adiabatic (2) isothermal
	(3) isotropic (4) polytrophic
71.	For an average Indian city, solid waste generated may be assessed per capita per day as:
	(1) $0.2 \mathrm{kg}$ (2) $0.4 \mathrm{kg}$
	(3) 1.0 Kg (4) 2.0 kg
72.	At break point of chlorination:
	(1) Chlorine is used to oxidize
	(2) Residual chlorine is zero
	(3) Residual chlorine is maximum
	(4) Residual chlorine reappears
73.	The correct statement of comparison of ultimate BOD, COD, Theoretica oxygen demand (THOD) and 5 day BOD is:
	(1) $BOD\mu > COD > ThOD > BOD_5$
	(2) $COD > ThOD > BOD_{5}$
	(3) $ThOD > COD > BOD_{\mu} > BOD_{5}$
	(4) $COD > BOD_{\mu} > BOD_{5} > ThOD$

uestion No.			Questions		
74.	ofth	alkalinity of a water s ne water sample is 112 -carbonate (in mg/L a	$mg/L$ as $CaCO_3$ . V	is $CaCO_3$ . If the total hard. What will be the carbonate	ness and
h	(1)	32	(2)	192	
	(3)	152	(4)	114	= 7.
75.	If 20 Wh	olb of 10% strength solat is the percent stre	lution is mixed wit ngth of the mixtur	h 30 lb of 1% strength solu e ?	tion.
	(1)	4.6	(2)	6.6	
	(3)	46	(4)	2.6	
76.	Wh	ich of the instrument	is based on Lamb	ert Beer's law ?	
	(1)	Spectrophotometer	(2)	GLC	
	(3)	HPLC	(4)	AAS	
77.	The 30	e chlorine dosage for v minute contact time	v: 'er is 2.7 mg/L. is found to be 0.	If the chlorine residual at 7 mg/L. What is the chl	cter a
		nand (in mg/L)?		,	P
			(2)	1.4	A 5
	den	nand (in mg/L) ? 2.0			
78.	(1) (3) Wh	nand (in mg/L) ?  2.0  2.7  nich value of coefficient	(2) (4) nt of correlation (	1.4	
78.	(1) (3) Wh	nand (in mg/L) ? 2.0 2.7	(2) (4) nt of correlation (	1.4 3.4	
78.	(1) (3) Wh	nand (in mg/L) ?  2.0  2.7  nich value of coefficient ween x and y variable	(2) (4) nt of correlation (es?	1.4 3.4 r) shows strongest associ	
78. 79.	(1) (3) Wh bet (1) (3)	nand (in mg/L)?  2.0  2.7  nich value of coefficient ween x and y variable — 0.33  0.565  rmissible limits of SO	(2) (4) nt of correlation (es? (2) (4)	1.4 3.4 r) shows strongest associ -0.950	atio
	(1) (3) Wh bet (1) (3) Per	nand (in mg/L)?  2.0  2.7  nich value of coefficient ween x and y variable — 0.33  0.565  rmissible limits of SO	(2) (4) nt of correlation (es? (2) (4)	1.4 3.4 r) shows strongest associ -0.950 0.750	atio
	(1) (3) Wh bet (1) (3) Per is:	nand (in mg/L)?  2.0  2.7  nich value of coefficient ween x and y variable  -0.33  0.565  rmissible limits of SO,  60 mg/m³	(2) (4) nt of correlation (es? (2) (4) (4)	1.4 3.4 r) shows strongest associ -0.950 0.750 as (24h basis) as per NAA	ation
	(1) (3) Who bet (1) (3) Per is: (1) (3) Wl	nand (in mg/L)?  2.0  2.7  nich value of coefficient ween x and y variable  -0.33  0.565  rmissible limits of SO,  60 mg/m³  80 mg/m³	(2) (4) nt of correlation (2) (4) (2) (4) (2) (4)	1.4 3.4 r) shows strongest associ -0.950 0.750 as (24h basis) as per NAA 120 mg/m³	ation
79.	(1) (3) Who bet (1) (3) Per is: (1) (3) Wl	nand (in mg/L)?  2.0  2.7  nich value of coefficient ween x and y variable  -0.33  0.565  rmissible limits of SO  60 mg/m³  80 mg/m³  nich of the following in om the government?	(2) (4) nt of correlation (2) (4) (2) (4) (2) (4)	1.4 3.4 r) shows strongest associ -0.950 0.750 as (24h basis) as per NAA 120 mg/m³ 30 mg/m³	atio

Question No.	Questions								
81.	Producer	gas is mixtu	re of:						
227	(1) Car	bon monoxide	and nitrog	gen g	gas				
	(2) Car	bon dioxide ar	nd hydroge	en ga	S				
	(3) Hyd	lrogen and wa	ter vapour						
*:	(4) Oxy	gen and nitro	gen gas						
82.	The dige	stion process	taking pla	ce in	a biogas	plant is	terme	d:	
	(1) Ana	erobic		(2)	Oxidation	1			
	(3) Red	uction		(4)	Aerobic d	ligestion			e asen areas
83.	10.00	one of the two ain damage ar					petrol	, whic	ch can
	(1) Sul	phur		(2)	Benzene				
-	. 1881.0			21 22					
84.	(3) Nits	rogen oxide sence of hydro luction in biog					osive	effect	
84.	(3) Nita The pres (1) Red (3) Act Match th	sence of hydro luction in biog s as catalyst he List I and I	gas produc	ide in	n biogas c rate (2	) Corr ) Non	e of th	e abo	ve
	(3) Nita The pres (1) Red (3) Act Match th	sence of hydro luction in biog s as catalyst he List I and I low the lists:	gas produc	ide in	n biogas c rate (2 (4 ct the cor	) Corr ) Non	e of th	e abo	ve
	(3) Nita The pres (1) Red (3) Act Match the given be	sence of hydro luction in biog s as catalyst he List I and I low the lists:	gas produc	ide intion	n biogas c rate (2 (4 ct the corr	) Corr ) Non	e of th	e abo	ve
	(3) Nita The pres (1) Red (3) Act Match th	sence of hydro luction in biog s as catalyst he List I and I low the lists:	gas produc	ide in	n biogas crate (2) (4) ct the corr	) Corr ) Non	e of th	e abo	ve
	(3) Nitronal The press (1) Red (3) Act Match to given be	sence of hydro luction in biog s as catalyst he List I and I low the lists: List I Hard acid	gas produc	ide intion sele	n biogas c rate (2 (4 ct the corr	) Corr ) Non	e of th	e abo	ve
	(3) Nitronal The press (1) Red (3) Act Match the given be	sence of hydro luction in biog s as catalyst he List I and I low the lists:  List I Hard acid Soft acid	gas produc	ide intion sele	n biogas c rate (2) (4) ct the corr	) Corr ) Non	e of th	e abo	ve
	(3) Nita The pres (1) Red (3) Act Match the given be A B C	sence of hydro luction in biog s as catalyst he List I and I low the lists: List I Hard acid Soft acid Hard base	gas produc	sele  Lis SO RS S20	n biogas c rate (2) (4) ct the corr	) Corr ) Non	e of th	e abo	ve
	(3) Nita The pres (1) Red (3) Act Match the given be A B C D	sence of hydro luction in biog s as catalyst he List I and I low the lists: List I Hard acid Soft acid Hard base	gas produc	sele  Lis SO RS S20	n biogas c rate (2) (4) ct the corr	) Corr ) Non	e of th	e abo	ve
	(3) Nita The pres (1) Red (3) Act Match the given be A B C D	sence of hydro luction in biog s as catalyst he List I and I low the lists:  List I Hard acid Soft acid Hard base Soft base	as product	sele  Lis SO RS S20	t II  2- 4  13  13  13  13  14  15  16  17  18  18  18  18  18  18  18  18  18	) Corr ) Non- rect answ	e of th	e abo	ve
	(3) Nita The pres (1) Red (3) Act Match the given be A B C D Codes:	sence of hydro luction in biog s as catalyst he List I and I low the lists:  List I Hard acid Soft acid Hard base Soft base	as product	sele  Lis SO RS S2C SO	t II  2- 4  C  C  C  C  C  C  C  C  C  C  C  C	) Corr ) Non- rect answ	e of th	e abo	ve
	(3) Nita The pres (1) Red (3) Act Match the given be A B C D Codes:	sence of hydro luction in biog s as catalyst he List I and I low the lists:  List I Hard acid Soft acid Hard base Soft base	as product	sele  Lis SO RS S2C SO	t II  2- 4  CC  CC  CC  CC  CC  CC  CC  CC  CC	) Corr ) Non- rect answ	e of th	e abo	ve

No.				Questions						
86.	Match the List I and List II and select the correct answer from the cogiven below the lists:									
		List-I Particul atmosphere)	ate of the	List-II (C)	haracteristics o	of the				
	A.	Aerosol	*	1. Combin	ation of smoke	of fog				
	В	Fly ash		2. Minute	particles with w	ater				
-1.4	C	Fume		3. Emitted	by coal burning	7				
	D	Smog		4. Made up	of metal vapor	ır				
	Codes:				73.5					
		A	В	С	D					
* -	(1)	2	3	1	4.	* * * * * * * * * * * * * * * * * * * *				
	(2)	2	3	4	1					
ŀ	(3)	3	4	2	1	9.1				
	(4)	3	4	1	2					
- 1			1 3	<u> </u>						
87.	Match t	the List I and elow the lists	List II an	d select the cor		om the code				
87.	Match t	elow the lists :	List II an	d select the cor	rect answer fr	om the code				
87.	Match t		List II an	d select the cor	rect answer fr	om the code				
87.	Match to given be Lis	elow the lists : st I (Element)	List II an	d select the cor	rect answer from the body) ormal growth	om the code				
87.	Match to given be Lis A Alt B Co	elow the lists : st I (Element) uminium	List II an	d select the cor List II (Function 1. Needed for no	rect answer from the body) ormal growth f Vitamin B12					
87.	Match to given be List A Alt B Co C Co	elow the lists: st I (Element) uminium pper	List II an	d select the cor List II (Function 1. Needed for no 2. Metabolism o	rect answer from the body) ormal growth f Vitamin B12 port enzyme co					
87.	Match to given be List A Alt B Co C Co	elow the lists: st I (Element) uminium pper balt ckel	List II an	List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans	rect answer from the body) ormal growth f Vitamin B12 port enzyme co					
87.	Match to given be List A Alt B Co C Co D Nie	elow the lists: st I (Element) uminium pper balt ckel	List II an	List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans	rect answer from the body) ormal growth f Vitamin B12 port enzyme co					
87.	Match to given be List A Alt B Co C Co D Nie	elow the lists: st I (Element) uminium pper balt ckel	List II an	d select the cor.  List II (Function  1. Needed for no.  2. Metabolism of  3. Electron trans  4. Protein transfer	rect answer from the body) ormal growth f Vitamin B12 port enzyme conter in serum					
87.	Match to given be Lis A Ala B Co C Co D Nic Codes:	elow the lists: st I (Element) uminium pper balt ckel	List II an	d select the cor.  List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans  4. Protein transfer	rect answer from the body) ormal growth f Vitamin B12 port enzyme coer in serum					
87.	Match to given be Lis A Ala B Co C Co D Nie Codes:	elow the lists:  st I (Element)  uminium  pper  balt  ckel  A  1	List II an	d select the cor.  List II (Function  1. Needed for no  2. Metabolism o  3. Electron trans  4. Protein transfer  C  3	rect answer from the body) ormal growth f Vitamin B12 port enzyme coer in serum					

Question No.				Questions						
88.	Match the List I and List II and select the correct answer from the coordinate given below the lists:									
		List 1		List II	List II					
	A	Food	chain	1. Relationsh	nip of all the o	rganisms in a	given habitat			
	В	Food	web	2. Distinct co	ommunities of	a particular				
	C	Bion	nes	3. Producers a niche	, consumers a	nd decompose	rs is given in			
	D	Auto	troph	4. Photosynt	hesis					
	Cod	es:								
			Α	В	C	D				
	(	1)	1	2	3	4				
		2)	3	1	2	4				
			^	4	2 .	1	V H H H			
n = 1	(	3)	3	4	2	1 -				
80		4)	4	3	2	1	from the ead			
89.	Mat give	4) ch th en bel	4 ne List I an low the list I	d List II and ses:	elect the corr	3				
89.	Mat	4) ch th en bel	4 ne List I an low the list I	d List II and ses:  List II  1. Indirect	elect the corr	ill the energy	from the code			
89.	Mat give	4) ch th en bel	4 ne List I an low the list I nass	d List II and ses :  List II  1. Indirect sustaini	ly supplies ang life on the eneans of store	all the energy				
89.	Mat give	ch then bel List Bion	4 ne List I an low the list I nass	d List II and sets:  List II  1. Indirect sustaining 2. Good management of the solar endown.	ly supplies and life on the eneans of storiergy	all the energy earth ing diffuse an	y required for			
89.	Mat give	List Bion Petro	4 ne List I an low the list I nass	d List II and sets:  List II  1. Indirect sustaining 2. Good in solar en  3. An importural arc	ly supplies and life on the eneans of storiergy	all the energy earth ing diffuse and n to present e	required for			
89.	Mat give A B C	List Bion Petro	4 ne List I an low the list I nass as	d List II and sets:  List II  1. Indirect sustaining 2. Good in solar en  3. An importural arc	ly supplies and life on the eneans of storiergy	all the energy earth ing diffuse and n to present e	required for			
89.	Mat give A B C	List Bion Petro	4 ne List I an low the list I nass as	d List II and sets:  List II  1. Indirect sustaining 2. Good in solar en  3. An importural arc	ly supplies and life on the eneans of storiergy	all the energy earth ing diffuse and n to present e	required for			
89.	Mat give A B C Coo	List Bion Petro	4 ne List I an low the list I nass as o-plants r energy	d List II and sets:  List II  1. Indirect sustaining 2. Good on solar en 3. An importural are 4. Sources	ly supplies and life on the eneans of storiergy fortant solutions of liquid hydronicals	all the energy earth ing diffuse and n to present e	required for			
89.	Mat give A B C Coo	List Bion Biog Petro Sola	4 ne List I an low the list I nass as o-plants r energy	d List II and sets:  List II  1. Indirect sustaining 2. Good in solar end 3. An important area 4. Sources	ly supplies and life on the eneans of storiergy cortant solution eas	all the energy earth ing diffuse and n to present e	required for			
89.	Mat give A B C Coo	List Bion Petro Sola (1)	e List I and ow the list I mass as o-plants r energy A 4	d List II and sets:  List II  1. Indirect sustaining 2. Good in solar end 3. An importural area 4. Sources  B 3	ly supplies and life on the eneans of storiergy fortant solution eas	all the energy earth ing diffuse and not present expression D	required for			

No.					į.	. (	Ques	tions	2	4				=1
90.	Match the List I and List II and select the correct answer from the codes given below the lists:													
		List l	(Pol	lutant)	Li	st II (S	ource	es)						
	A	CO	20		1.	Indus	strial	wastage	,					
	В	NO <sub>2</sub>		11	2.	Crus	hing a	ınd burı	ning of	coal				
4	C	SO <sub>2</sub>			3.	Inco	mplete	e burnir	ng of c	arbona	ceous f	fuel		
	D	H <sub>2</sub> S			4.		ric po ossil i	wer ge	nerato	rs and a	automo	biles,	whi	ich
	Cod	es:									T L SO			•
		es (		Α		В		С		D				
- 1	(	(1)		4		3		2		1	. •			
	(	(2)		2		3		4		1		- K		
	1	2)		3		1		1		2				
		(3)				4	71	1						
		(4)		3		4		2		1		34 34 72		
91.	Mat	(4) tch lis	ct an	3 Treatn		Units)		2 n List	elow	1 pe of		s) an	d se	elec
91.	Mat the	tch lis	ct an I	3 Treatm		Units)	des g	n List given b	elow 1	pe of the lis		s) an	d se	eled
91.	Mat the	tch list	ct an I ent U	3 Treatm		Units)	des g	n List given b List I	elow 1	pe of the lis		ss) an	d se	eled
91.	Mat the	tch list corre List eatme	ct an I ent U kling	Treatmaswer u	ising	4 Units) the co	odes g (Ty 1.	n List given b List l pe of p	elow II proces	pe of the liss	its:	ss) an	d se	elec
91.	Matthe (Tree	tch list corre List eatme Tric	ct an I ent U kling vated	Treatmaswer units)	ising	4 Units) the co	odes g (Ty 1.	List List List List List List List List	elow f II proces piotic	pe of the liss)	on	ss) an	d se	elec
91.	Matthe (Trea. a. b.	tch list corre List eatme Tric Acti	ct an I ent U kling vated	Treatmaswer units) g filter d sludg	ising	4 Units) the co	(Ty 1. 2.	List I List I De of I Syml External	elow f II proces piotic nded a	pe of the lists)	on th	ss) an	d se	elec
91.	Matthe (Trea. b. c. d.	tch list corre List eatme Tric Acti	ct an I ent U kling vated	Treatmaswer units) g filter d sludg	ising	4 Units) the co	(Ty 1. 2. 3.	List I List I De of I Syml External	elow for some solution of the	pe of the lists)	on th	ss) an	d se	elec
91.	Matthe (Trea. b. c. d.	tch list corre List eatme Acti Oxio Oxio	ct an I ent U kling vate dation	Treatmaswer units) g filter d sludg	ge pro	4 Units) the co	(Ty 1. 2. 3.	List I List I De of I Syml External	elow for some solution of the	pe of the lists)	on th	ss) an	d se	elec
91.	Matthe (Trea. b. c. d.	tch list corre List eatme Tric Acti Oxio Oxio les: A	ct an I ent U kling vate dation dation	Treatm swer u (nits) g filter d sludg n ditch	ge pro	4 Units) the co	(Ty 1. 2. 3.	List I List I De of I Syml External	elow for a continuous process	pe of the lists) aeratical grow	on th		d se	elec

Question No.	Questions
92.	Function of algae in oxidation pond is to:
791 	(1) Provide a mat over surface of the oxidation pond so as to prevent evaporation of water
	(2) Provide oxygen for bacteria to degrade organic matter
	(3) Provide a greenish appearance to the pond
	(4) Prevent the odour nuisance
93.	When sewage enters a following river, the rapid depletion of dissolved oxygen is due to:
2 2	(1) Change in temperature of the river
	(2) The suspended particles in the river and waste
9.5	(3) Respiratory activity of aquatic plants
	(4) Microbial activity
94.	Which of the pollutant or pairs of pollutants is formed due to photochemical reactions?
	(1) CO alone (2) O <sub>3</sub> and PAN
	(3) PAN and NH <sub>3</sub> (4) NH <sub>3</sub> and CO
95.	Consider the following pair of the treatment units and impurities removed:
9	(a) Grit chamber Sand and silt
	(b) Detritus tank Organic matter
8 1	(c) Primary sedimentation tank Suspended impurities
	(d) Aeration tank of activated sludge process Oil and grease
	Which of the pairs are correctly matched?
	(1) a and b (2) a, b, c and d
	(3) b, c and d (4) a and c

Question No.		Qı	iestions	
96.	afte		a 2% sam	nitial DO and final DO values ple of sewage, are 8.5 mg/L and be :
w	(1)	$50\mathrm{mg/L}$	(2)	150 mg/L
	(3)	$250\mathrm{mg/L}$	(4)	$350\mathrm{mg/L}$
97.	The	trap used for water closet is	called:	
	(1)	Gully trap	(2)	p-type
	(3)	Intercepting	(4)	Anti-siphon trap
		en below the lists : List I		correct answer using the codes  List II
	a.	Dissolved solids	1.	Sedimentation
	b.	Colloidal solids	2.	Reverse osmosis
	c.	Volatile solids	3.	Coagulation
	d.	Settleable solids	4.	Digestion
	Cod	les:		
		A B C D		A B C D
	(1)	2 3 4 1	(2)	3 2 4 1
	(3)	2 3 1 4	(4)	3 2 1 4
				20 D

Question No.	1, 0,		Quest	ions		
99.		ch of the materials are us leachate movements?	sed as la	andfill	sealants for the c	ontrol of gas
	(a)	Lime		(b)	Sand	
A	(c)	Bentonite		(d)	Fly ash	į.
	(e)	Butyl rubber				
	Sele	ect the correct answer usi	ing the	codes	given below :	
	(1)	a, b and c		(2)	d and e	
	(3)	c and e		(4)	a, b and d	
100.		ich of the following air po	llutants	s is/are	e responsible for p	hotochemica
	(a)	Oxides of nitrogen		(b)	Ozone	
	(c)	Unburnt hydrocarbons		(d)	Carbon monoxi	de
	. Coo	de:				
	(1)	a and b		(2)	c and d	
	(3)	b and d		(4)	a and d	
224						
e de la constant de l						



Question No.		Que	stions	
1.	Not	ch is a device used for measuri	ng the	
	(1)	Rate of flow through pipes		
¥ .	(2)	Rate of flow through a small cl	nannel	
0 2	(3)	Velocity through a pipe		
	(4)	Velocity through a small chann	nel	
2.	Rota	ameter is used for measuring:		
1.5	(1)	Density of fluid	(2)	Velocity of fluid in pipes
	(3)	Discharge of fluids	(4)	Viscosity of fluids
3.	One	horse power is equal to:		
	(1)	746 watts	(2)	736 watts
* =	(3)	550 watts	(4)	75 watts
4.	Bea	t is equal to :		
	(1)	One oscillation	(2)	Twice the oscillation
	(3)	Half the oscillation	(4)	None of these
5.	A pe	erfect gas obeys	r yyu	
	(1)	Boyle's law	(2)	Charle's law
10 m	(3)	Boyle's and Charle's law	(4)	None of these
6.	The calle	sum of internal energy and ed:	produ	ct of pressure and volume is
	(1)	Entropy	(2)	Enthalpy
	(3)	Heat supplied	(4)	None of these

Question No.	Questions
7.	The compression ratios for engine is:
	(1) 5 to 8 (2) 15 to 20
	(3) 3 to 6 (4) 30 to 40
8.	One bar is equal to:
7 H	(1) $1.033  \text{kgf/cm}^2$ (2) $14.7  \text{kgf/cm}^2$
	(3) $1.0197  \text{kgf/cm}^2$ (4) $1  \text{kgf/cm}^2$
9.	Of the following gases, which one suffocates living beings even to death?
	(1) carbon dioxide (2) carbon monoxide
	(3) hydrogen sulphide (4) sulphur dioxide
10.	A gas follows the law $PV_1 = C$ , of the value of $n = 1$ , the process is known as:
	(1) adiabatic (2) isothermal
	(3) isotropic (4) polytrophic
11.	Tetraethyl Lead is added to gasoline to:
	(1) Lubricate internal engine parts
	(2) Increase the life of catalytic convertor.
2 42	(3) Prevent engine a knock and improve engine performance
	(4) Increase the efficiency of gasoline combustion and improve milage
12.	The green house gas CO <sub>2</sub> is chiefly found in:
	(1) Ionosphere (2) Stratosphere
	(3) Troposphere (4) Mesosphere

Question No.	Questions							
13.	Acid precipitation kills the fish by causing the release of:							
	(1) Carbon monoxide	(2)	Mercury					
# # 0 0	(3) Aluminum ions	(4)	Anticoagulants					
14.	Which of the following is the cor	rect order	of increase in atomic size?					
	(1) $Mg < Na^+ < F^- < Al$	(2)	$Na^+ < F^- < Al < Mg$					
	(3) $Na^+ < Al < Mg < F^-$	(4)	$Na^+ < F^- < Mg < Al$					
15.	Which of the following is correct	ly matche	d?					
	(1) Copper-bauxite	(2)	Iron-galena					
	(3) Mercury-cinnabar	(4)	Lead-magnetite					
16.	Which satellite recorded the pre	esence of a	an ozone hole ?					
	(1) TIROS-N	(2)	GOES					
	(3) NIMBUS-7	(4)	Landstat-3					
17.	Who changed the name of kubabul, one of the popular tree species suited for afforestation, to subabul?							
	(1) Manibhai Desai	(2)	Lal Bahadur Shastri					
	(3) A.K.N. Reddy	(4)	Indira Gandhi					
18.	The heavy metal that has seen application as a fungicide and is responsible for a type of poisoning called Hatter's shakes is?							
	(1) Mercury	(2)	Lead					
-40	(3) Cadmium	(4)	Arsenic					
19.	The major route for widespread	distributi	on more persistent pesticide is:					
	(1) soil	(2)	water					
1 2	(3) living organism	(4)	atmosphere					

Question No.	Questions
20.	Who used the term 'hot dilute soup' for Darwin's warm little pond?
	(1) Oparin (2) Haldane
	(3) Lamarck (4) Wallace
21.	Producer gas is mixture of:
	(1) Carbon monoxide and nitrogen gas
	(2) Carbon dioxide and hydrogen gas
	(3) Hydrogen and water vapour
	(4) Oxygen and nitrogen gas
22.	The digestion process taking place in a biogas plant is termed:
	(1) Anaerobic (2) Oxidation
	(3) Reduction (4) Aerobic digestion
23.	Lead is one of the two most toxic chemicals found in petrol, which can cause brain damage and luekaemia, which is other?
	(1) Sulphur (2) Benzene
	(3) Nitrogen oxide (4) SPM
24.	The presence of hydrogen sulphide in biogas causes:
	(1) Reduction in biogas production rate (2) Corrosive effect
	(3) Acts as catalyst (4) None of the above

No.	Questions								
25.		Match the List I and List II and select the correct answer from the codes given below the lists:							
		List I	Allen Tolland	List II	ngi ya 144				
	A	Hard acid		SO <sub>4</sub> <sup>2-</sup>	At Ix				
	В	Soft acid		RS <sup>+</sup>					
	C	Hard base	. 3	$S_2O_3^{2-}$					
	D	Soft base	10	SO <sub>3</sub>	1				
	Codes:				10 10 10 10 10 10 10 10 10 10 10 10 10 1	<u> </u>			
		A	В	С	D				
	(1)	4	1	. 2	3				
N.	(2)	4	2	1	3				
	(3)	3	2	1	4				
W 12	(4)	3	2	4	1				
26.	-	the List I and I				r from the code			
26.	Match	the List I and I below the lists:  List-I Particula atmosphere)	List II and	select the corr	rect answe				
26.	Match given b	List-I Particula atmosphere)	List II and	select the corr	rect answe	cs of the			
26.	Match given b	List-I Particula atmosphere) Aerosol	List II and	List-II (Cl particulat	rect answe	cs of the oke of fog			
26.	Match given b	List-I Particula atmosphere)	List II and	List-II (Cl particulat 1. Combin 2. Minute	rect answe	cs of the oke of fog h water			
26.	Match given b	List-I Particula atmosphere) Aerosol Fly ash	List II and	List-II (Cl particulat 1. Combin 2. Minute 3. Emitted	rect answer haracteristi e) ation of smo	cs of the oke of fog h water ning			
26.	Match given b	List-I Particula atmosphere) Aerosol Fly ash Fume Smog	List II and	List-II (Cl particulat 1. Combin 2. Minute 3. Emitted	rect answer  haracteristi e) ation of smooth articles with by coal burn	cs of the oke of fog h water ning			
26.	Match given b	List-I Particula atmosphere) Aerosol Fly ash Fume Smog	List II and	List-II (Cl particulat 1. Combin 2. Minute 3. Emitted	rect answer  haracteristi e) ation of smooth articles with by coal burn	cs of the oke of fog h water ning			
26.	Match given b	List-I Particula atmosphere) Aerosol Fly ash Fume Smog	List II and	List-II (Cl particulat 1. Combin 2. Minute 3. Emitted 4. Made up	haracteristi e) ation of smo	cs of the oke of fog h water ning			
26.	Match given b	List-I Particula atmosphere) Aerosol Fly ash Fume Smog :	List II and ate of the	List-II (Cl particulat 1. Combin 2. Minute 3. Emitted 4. Made up	haracteristi e) ation of smo	cs of the oke of fog h water ning			
26.	Match given b  A B C D Codes  (1)	List-I Particula atmosphere) Aerosol Fly ash Fume Smog : A	List II and ate of the B	List-II (Cl particulat 1. Combin 2. Minute 3. Emitted 4. Made up	haracteristi e) ation of smo	cs of the oke of fog h water ning			

No.					Questions			
27.	Match the List I and List II and select the correct answer from the codes given below the lists:							
- 7		List I	(Element)		List II (Function	in the bod	v)	
	Α	Alumi			1. Needed for no			
	В	Coppe	r		2. Metabolism of			
5	C	Cobalt	t .		3. Electron transp	ort enzyme	complex	
	D	Nickel		- 1-1	4. Protein transfe			
3.00	Cod	es:						
	T <sub>a</sub> :		Α	В	С	D		
ŀ	(1)		1	2	3	4		
	1 (	2)	2	4	1	3		
	(3)		3	4	2	1		
	(4)		4	3	2	1	1	
28.	VIA 101	Familia II						
28.	Mat	ch the	List I and	d List II ar	nd select the corr		r from the cod	
28.	Mat	ch the n belov	List I and with the list	d List II ans:	•		r from the cod	
28.	Mat give	n belov	w the list	List II	nd select the corr	ect answe		
28.	give	n belov List I	w the list	List II 1. Relat	nd select the corr	rect answe	a given habitat	
28.	give	List I Food c	hain	List II 1. Relat 2. Distin 3. Produ	ionship of all the onet communities of	rect answe	a given habitat	
28.	A B	List I Food c Food v	hain veb	List II 1. Relat 2. Distin 3. Produ	ionship of all the onet communities of	rect answe	a given habitat	
28.	A B C	List I Food c Food v Biome	hain veb	List II 1. Relat 2. Distin 3. Produ	ionship of all the onet communities of acers, consumers and	rect answe	a given habitat	
28.	A B C	List I Food c Food v Biome	hain veb	List II 1. Relat 2. Distin 3. Produ	ionship of all the onet communities of acers, consumers and	rect answe	a given habitat	
28.	A B C Cod	List I Food c Food v Biome	hain veb s	List II 1. Relat 2. Distin 3. Produ a nich 4. Photo	ionship of all the onet communities of acers, consumers and acers are access and acers are access and acers and acers	rect answerganisms in a particular	a given habitat	
28.	A B C Cod	List I Food c Food v Biome Autotre	hain veb s oph	List II 1. Relat 2. Distin 3. Produ a nich 4. Photo	ionship of all the onet communities of acers, consumers and esynthesis	rect answerganisms in a particular and decomposition	a given habitat	
28.	A B C Cod	List I Food c Food v Biome Autotre es:	hain veb s oph A 1	List II  1. Relat 2. Distin 3. Produ a nich 4. Photo	ionship of all the onet communities of acers, consumers and esynthesis	rect answerganisms in a particular decomposition decomposi	a given habitat	

Question No.			* g		Que	estions				
29.	Match the List I and List II and select the correct answer from the codes given below the lists:									
		List	I	Lis	st II					
	A	Bion	nass	1.	Indirectl sustainin	y supplies a	all the ener	gy required for		
i ve si	В	Biog	as	2.		eans of stori		and intermittent		
	С	Petro	-plants	3.		ortant solution	n to present	energy crisis in		
a Te	D	Solar	energy	4.	Sources	of liquid hydi	rocarbon	41		
	Cod	es:					- 12			
		2.5	Α		В	C	D			
6	(	(1)	4		3	2	1			
	(	(2)	3	1.1	2	4	1	2.27		
	(	(3)	2		3	. 4	1			
14 55	. (	(4)	4		3 1	1	2			
30.	Mat	ch then bel	e List I and ow the lists	List :	II and se	lect the cor	rect answe	r from the code		
		List I (Pollutant)			List II (Sources)					
	Α	CO		1.						
	В	NO <sub>2</sub>		2.	· ·					
	C	SO <sub>2</sub>		3. Incomplete burning of carbonaceous fuel						
	D	H <sub>2</sub> S	E E	4. Electric power generators and automobiles, which use fossil fuels						
	Cod	es:	28							
			A		В	C	D			
	(	(1)	4		3	2	1			
2.0	100	2)	2		3	4	1	]		
	11 3	2)	3		4	1	2	ps - 1		
		(3) (4)	3	-	4					

Question No.	Questions						
31.	Match List I with List II and select the correct answer using the codes given below the lists:						
	List I List II						
	a. Sludge disposal 1. Seeding						
	b. Sludge digestion 2. Biofilters						
	c. Aerobic action 3. Laggoning						
	d. Recirculation 4. Contact bed						
	Codes:						
	A B C D A B C D						
	(1) 3 1 4 2 (2) 3 1 2 4						
	(3) 1 3 2 4 (4) 1 3 4 2						
32.	Ringlemann's scale is used to:						
	(1) Measure CO						
	(2) Measure CO <sub>2</sub>						
	(3) Grade density of smoke						
	(4) Grade automobile exhaust gas						
33.	Which of the following pair is not correctly matched?						
1. 62	(1) BOD Strength						
	(2) Methane Product of anaerobic decomposition						
	(3) COD Biodegradability of waste water						
	(4) Nitrate Methamoglobinemia						

Question No.	Questions						
34.	The	e atmosphere extends up to heig rmal layers.	ht of 10	0,000 km. It is divided into fou			
	(a)	Mesosphere	(b)	Stratosphere			
18	(c)	Thermosphere	(d)	Troposphere			
	The upv	e correct sequence of these laye ward is	rs star	ting from the surface of eart			
5.5	(1)	a, d, a, c	(2)	d, b, a, c			
	(3)	d, b, c, a	(4)	b, d, c, a			
35.	Coa	l based thermal power plant stat	ions po	llute the atmosphere by adding			
	(1)	NOx and SOx	(2)	NOx, SO, and SPM			
	(3)	NOx, SO <sub>2</sub> , SPM and CO	(4)	NOx, SPM and CO			
36.	Ma	tch List I with List II and selected below the lists:	t the c				
		List I		List II			
. 5. 5		(Cause)		(Effect)			
	a.	Carbon monoxide	1.	Acid rain			
- 0	b.	Carbon dioxide	2.	Explosion			
0	c.	Methane	3.	Asphyxiation			
	d.	Sulphur dioxide	4.	Green house effect			
	Cod	es:					
		A B C D		A B C D			
	(1)	2 3 1 4	(2)	3 4 2 1			
	(3)	1 3 4 2	(4)	4 $2$ $1$ $3$			
	(0)	1 0 1 4	(4)	4  2  1  3			

Question No.	Questions
37.	Choose the correct answer:
	The stabilization of sewage in oxidation pond is due to action of:
	(1) Aerobic and anaerobic bacteria
	(2) Algae and bacteria
Umry A	(3) Organic and inorganic compound
	(4) Algae and protozoa
38.	Inversion is characterized by:
	(1) Upper cold and lower warm layer
	(2) Upper warm and lower cold layer
	(3) Both of the above
	(4) None of these
39.	Asbestos 'Silent Killer' can cause death of worker due to:
	(1) Heart attack
*	(2) Lung cancer
	(3) Kidney failure
elt.	(4) Brain damage
40.	Which is the first indoor pollutant of which the masses become aware?
	(1) Carbon dioxide
	(2) Formaldehyde
	(3) Radon
	(4) Ozone

Question No.				Quest	ions				
41.		an average ta per day a	2.5	y, solid wa	iste go	enerate	d may	be asse	ssed per
	(1)	$0.2\mathrm{kg}$			(2)	$0.4\mathrm{kg}$			
	(3)	1.0 Kg			(4)	$2.0\mathrm{kg}$			
42.	At b	reak point	of chlorinat	ion:		1-0			
	(1)	Chlorine is	s used to ox	idizé					
	(2)	Residual c	hlorine is z	ero	7 -		· v		
	(3)	Residual c	hlorine is m	aximum				a	
	(4)	Residual c	hlorine rea	ppears					
43.		correct sta					BOD, C	OD, Th	eoretical
	(1)	BODμ > C	OD > ThOI	$> BOD_5$					
	(2)	COD > Th	OD > BOD	$\mu > BOD_5$				The state of	
	(3)	ThOD > C	OD > BOD	$u > BOD_5$					
	(4)	COD > BC	$D\mu > BOD_{t}$	>ThOD					
44.	oftl	alkalinity one water sar -carbonate	mple is 112	mg/L as C	aCO <sub>3</sub> .				
	(1)	32			(2)	192			
	(3)	152			(4)	114			
45.		0 lb of 10% s at is the pe					of 1% s	trength	solution
	(1)	4.6			(2)	6.6			- ).
	(3)	46			(4)	2.6			

Question No.	Questions							
46.	Which of the instrument is based	on Laml	bert Beer's law ?					
	(1) Spectrophotometer	(2)	GLC					
	(3) HPLC	(4)	AAS					
47.	The chlorine dosage for water is 2 30 minute contact time is found demand (in mg/L)?	2.7 mg/L. to be 0	If the chlorine residual after a .7 mg/L. What is the chlorine					
	(1) 2.0	(2)	1.4					
4 4	(3) 2.7	(4)	3.4					
48.	Which value of coefficient of corr between x and y variables?	elation (	r) shows strongest association					
	(1) -0.33	(2)	-0.950					
	(3) 0.565	(4)	0.750					
49.	Permissible limits of SO <sub>2</sub> in reside is:	ntial are	eas (24h basis) as per NAAQMS					
	(1) $60 \text{ mg/m}^3$	(2)	$120\mathrm{mg/m^3}$					
	(3) $80 \text{ mg/m}^3$	(4)	$30  \mathrm{mg/m^3}$					
50.	Which of the following industries d from the government?	oes not re	equire environmental clearance					
	(1) Cement industry	(2)	Paper and pulp industry					
5.5	(3) Sugar industry	(4)	Distillery					
51.	The bird Dodo became extinct bed	ause of :						
	(1) its beautiful feather	(2)	its fearlessness					
	(3) its curved beak	(4)	its melodious songs					

Question No.	Questions							
52.	Which place is often referred to as the valley of deaths?							
	(1)	Cubato, Brazil		(2)	Chernobyl, USSR			
	(3)	Palo alto, USA		(4)	Nainital, India			
53.	Of t		mals, whic	ch can sur	vive without water for a wh	ole		
2	(1)	Wild Ass	*	(2)	Gembok			
	(3)	Addax		(4)	None of the above			
54.		ich group of plants ployed as pollution			rne chemicals and is theref	ore		
	(1)	algae		(2)	lichens			
	(3)	fungi		(4)	bryophytes			
55.	The	Moh's scale is mea	asure of a	mineral's	:			
	(1)	Color		(2)	Density			
	(3)	Luster		(4)	Hardness			
56.		ich technique can ole town by operati			tion of sulphur dioxide ove e location?	er a		
100	(1)	LIDAR		(2)	Spectrophotometry			
	(3)	GC		(4)	Mass spectroscopy			
57.	Wh	at is eco-freeze?						
	(1)	Halting ecologica	l degradat	ion				
57	(2)	Stopping the ecol	ogical dis	aster				
	(3)	Planning an ecolo	gical bala	nce				
	(4)	Stopping the mar	nufacturin	g of enviro	onment modification weapo	ns		

Question No.									
58.									
	(1) Drag force-buoyant force	(2)	Buoyant force-Drag force						
	(3) Drag force + buoyant force	(4)	None of the above						
59.	Manometer is a device used for me	asuring	g:						
	(1) Velocity of a point in a fluid	(2)	Pressusre at a point in a fluid						
	(3) Discharge of a fluid	(4)	None of these						
60.	The point through which the buoya	ncy for	ce is acting is called :						
	(1) Centre of pressure	(2)	Centre of gravity						
	(3) Centre of buoyant force	(4)	None of these						
61.	Concentration of CO in vehicular exhaust is approximately:								
	(1) Below 20%	(2)	35%						
	(3) 50%	(4)	Above 70%						
62.	The size of the RSPM is:								
	(1) Below 10 μm	(2)	15–20 μm						
3 (a) 1, a 10, a	(3) 23 μm	(4)	above 25 μm						
63.	The reliability of Gaussian Plume	model i	s:						
	(1) 98%	(2)	95%						
of 1942	(3) 70%	(4)	50%						
64.	In the ECD of gas chromatograph	the ele	ectrons are :						
	(1) Captured by the determinant	specie	S						
	(2) Generated by the determinan	nt speci	es						
4	(3) Generated by nitrogen gas								
	(4) None of the above								

Question No.	Questions								
65.	Which prevent the entry of foul gas and allows ventilation?								
11 11 7.10	(1) Intercepting trap (2) Fresh air inlet								
	(3) Gully trap (4) Flushing cistern								
66.	Electrostatic precipitators are used as pollution control device for the removal of:								
	(1) SO <sub>2</sub>								
	(2) NOx								
	(3) Suspended particulate matter								
	(4) Volatile fatty acids								
67.	Ozone layer in the upper atmosphere is getting depleted owing to its reaction with pollutant like:								
	(1) Hydrogen peroxide (2) Carbon monoxide								
88.0	(3) Cholofluoro carbon (4) Volatile fatty acids								
68.	Choose the correct statement in the following:								
1 000	The rate of 5 day BOD exerted at any time is								
	(a) Directly proportional to BOD satisfied								
10	(b) Directly proportional to BOD remaining								
	(c) Inversely proportional to BOD remaining								
	(d) Inversely proportional to BOD satisfied								
	Which of these statements are correct?								
	(1) a, b, c and d (2) a, b and c								
	(3) a and d (4) b and c								

Question No.	Questions								
69.	Which of the following pairs are correctly matched?								
	(1) SPM - a. Blood hemoglobin								
	(2) NO - b. Vegetation								
4.	(3) CO - c. Respiratory system								
	(4) $SO_2$ – d. Building materials								
70.	Which of the following pairs are correctly matched?								
30	(1) Reverberation time a. Time required to reduce noise by 60dB								
	(2) NIPTS b. Responsible for permanent hearing loss								
	(3) Sound foci c. Formed when sound waves are reflected from the convex surface								
	(4) TTS  d. Responsible for temporary hearing loss								
71.	Match list I (Treatment Units) with List II (Type of process) and select the correct answer using the codes given below the lists:								
1	List II								
	(Treatment Units) (Type of process)								
	a. Trickling filter 1. Symbiotic								
	b. Activated sludge process 2. Extended aeration								
	c. Oxidation ditch 3. Suspended growth								
	d. Oxidation pond 4. Attached growth								
3 1 3	Codes:								
	A B C D A B C D								
	(1) 3 4 2 1 (2) 4 3 1 2								
	(3) 3 4 1 2 (4) 4 3 2 1								

Question No.	Questions									
72.	Function of algae in oxidation pond is to:									
n 154 na 154	(1) Provide a mat over surface of the oxidation pond so as to prevent evaporation of water									
8 8 7 E	(2) Provide oxygen for bacteria to degrade organic matter									
*** a	(3) Provide a greenish appearance to the pond									
13 13 xxx	(4) Prevent the odour nuisance									
73.	When sewage enters a following river, the rapid depletion of dissolved oxygen is due to:									
: 1	(1) Change in temperature of the river									
	(2) The suspended particles in the river and waste									
	(3) Respiratory activity of aquatic plants									
	(4) Microbial activity									
74.	Which of the pollutant or pairs of pollutants is formed due to photochemical reactions?									
	(1) CO alone (2) O <sub>3</sub> and PAN									
	(3) PAN and NH <sub>3</sub> (4) NH <sub>3</sub> and CO									
75.	Consider the following pair of the treatment units and impurities removed:									
# #	(a) Grit chamber Sand and silt									
	(b) Detritus tank Organic matter									
	(c) Primary sedimentation tank Suspended impurities									
	(d) Aeration tank of activated sludge process Oil and grease									
	Which of the pairs are correctly matched?									
	(1) a and b (2) a, b, c and d									
	(3) b, c and d (4) a and c									

nestion No.											
76.	At an incubation temperature of 20°C, if initial DO and final DO values after 5 days incubation period on a 2% sample of sewage, are 8.5 mg/L and 5.5 mg/L, respectively. Then the BOD will be:										
	(1) 50 mg/L	(2)	$150\mathrm{mg/L}$								
	(3) 250 mg/L	(4)	350 mg/L								
77.	The trap used for water closet is ca	alled:	900000 10 10 10 10 10 10 10 10 10 10 10 10 10 1								
	(1) Gully trap	(2)	p-type								
	(3) Intercepting  Match List I (Nature of the solid)	(4)	Anti-siphon trap								
	given below the lists:  List I  a. Dissolved solids  b. Colloidal solids  c. Volatile solids  d. Settleable solids	1. 2. 3. 4.	List II Sedimentation Reverse osmosis Coagulation Digestion								
	Codes:		A B C D								
	(1) 2 3 4 1	(2)	3  2  4  1								
	(3) 2 3 1 4	(4)	3 2 1 4								
79.	Which of the materials are used a and leachate movements?  (a) Lime (c) Bentonite (e) Butyl rubber Select the correct answer using (1) a, b and c	(b)	Sand Fly ash								
-	(1) a, b and c		a, b and d								

Question No.	Questions										
80.	Which of the following air pollutants is/are responsible for photochemical smog?										
	(a)	-	es of nitrogen		(b)	Ozone					
	(c)		rnt hydrocarb	ons	(d)		Carbon monoxide				
	Cod		III IIyarocaro	OIIO ,	(00)						
* a	(1)		h		(2)	c and d	c and d				
	(3)	band			(4)	a and d					
82.	Acid rain is global concern for the ecologist and environme conservationists for which of the following reasons?  (a) The acid pollutants emitted in one country may be deposited as precipitation in other countries  (b) Acid rain affects both aquatic system as well vegetation  (c) It has distinct effect on soil microbiology and chemistry  Select the correct answer using the codes given below:  (1) a, b and c  (2) a and b  (3) a and c  (4) b and c  Match the List I and List II and select the correct answer from the given below the lists:										
		List I	(pollutants)	List II (Impacts)							
	A		ur oxides	Irritate eyes and nose, create brown haze, causes visible leaf damage, stunts plant growth							
	В	Nitro	gen oxides	2. Causes headaches, dizziness and nausea, reduces oxygen level in blood, impairs mental processes							
	C	Carbo	on monoxide	3. Cause	s cancer,	ncer, retards plant growth					
	D	Hydr	ocarbon	4. Corro	4. Corrodes metal, causes acute and chronic leaf injury, attacks a wide variety of trees						
	Co	des:									
			A	В	(		D -				
	(1)		4	1	2		3				
		(1)									
		(2)	2	3		1	1				
#			2 3 4	3 4 3	2	1 2 1	1 2				

Question No.	Questions									
83.	Match the List I and List II and select the correct answer from the codes given below the lists:									
	List I (water contaminant)  List II (Impacts)									
	A Pathogens 1. Lead to the growth of undesired aquatic life									
	B Heavy metals 2. Transmit communicable disease									
	C Nut	rients	3. Are con	amon in la	andfill leachate	and waste water				
A Maria	D Sus	pended	4. Lead to	the devel	opment of slud	ge deposits				
	Codes:									
		. A	В	C	D					
	(1)	4	3	2	1					
	(2)	2	. 3	4	1					
	(3)	2	3	1	4					
	(4)	4	3	11_	2					
84.	Pick ou	t wrong comb	ination:	*						
	(1) Fe <sup>+2</sup> - Haer_oglobin (2) Mg <sup>+2</sup> - Photosynthesis									
	(3) Se	+2 - Kreb's cyc	ele	(4)	Co <sup>+2</sup> - Vitan	nin B <sub>12</sub>				
85.	Blood i	s isotonic with	n:			- 6				
	(1) 0.3	16 M NaCl		(2)	Conc NaCl	Conc NaCl				
	(3) 50	% NaCl		(4)	30% NaCl					
86.	The mi		colloidal par	ticles und	der influence	of an electric field				
	(1) El	ectrolysis		(2)	Brownian r	novement				
	(3) Ca	ataphoresis		(4)	Dialysis					
			The second	7 ×	n 7	* .				

Question No.		Questions									
87.	Which of the following is corre	nich of the following is correct statement about CCl <sub>4</sub> ?									
	CCl <sub>4</sub> is used to extinguish the fire under the name Pyrene										
		2) CCl <sub>4</sub> resist to hydrolysis while leaving water due to non availability									
	(3) $CCl_4 \xrightarrow{Ag NO_3} No ppt$										
	(4) All of the above										
88.	If the liquid is dispersed in solid medium, then this is called as:										
	(1) Sol	(2) emulsion									
	(3) liquid aerosol	(4) Gel									
89.	In which case, the order of acidic strength is not corrected?										
	(1) $HI > HBr > HCl$	(2) $HIO_4 > HBrO_4 > HClO_4$									
	(3) $HClO_4 > HClO_3 > HClO_2$	$(4) \qquad \text{HF} > \text{H}_2\text{O} > \text{NH}_3$									
90.	The correct order of acidic strength of the Carboxylic acid is:										
	(1) Formic acid < benzoic acid < acetic acid										
	(2) Formic acid < acetic acid	Formic acid < acetic acid < benzoic acid									
	(3) Acetic acid < formic acid < benzoic acid										
	(4) Acetic acid < benzoic acid	< formic acid									
91.	The radioactive isotope of hyd	rogen is called :									
	(1) Radium	(2) Protium									
	(3) Deuterium	(4) Tritium									
92.	The material used to control n	eutrons are produced by the use of:									
	(1) Heavy water	(2) Paraffin									
	(3) Graphite	(4) Thorium									

Question No.	Questions										
93.	Polythene is polymer of:							72 g *			
	(1)	Isobutane		181		(2)	)	Ethyl	ene		
		Vinyl chlor			3	(4)		Propy			
94.		following rination of v		chlorin	ie c	om	pou	nds a	re for	med d	uring the
	(a)	NH <sub>3</sub> Cl				(b	)	NHC	$l_2$		2 79
	(c)	HOCl			196	(d	.)	OCl			25
1	(1)	b, a, c, d				(2	()	a, b,	d, c		
	0 8 6	a, b, c, d				(4	:)	b, a,	d, c		
95.	Mat	ch the follo	= 1	ō.							
	Set A					Set B					)
	i Recarbonation				1		Acti	Activated carbon			
	ii	Chlorinatio	n		2		Trih	alomet	hanes	7	
	iii	Taste & od	our		3		Lim	e soda	process	8	
	iv	iv Temperature inversion					Smo	og		M e	
	(1)	i–2 ii–1	iii–3	iv-4		(	2)	i–3	ii–2	iii–1	iv-4
	(3)	i–1 ii–3	iii $-4$	iv-2			4)	i–4	ii–3	iii–2	iv–1
96.	In sanitary landfill, decomposition and chemical changes with content of the solid waste goes on. Consequential changes with can be								hin organi nin land fi		
	(a)	Temperat									
	(b)	Product o	f gases li	ke H <sub>2</sub> S,	CO,	C	O <sub>2</sub> &	$\mathrm{CH}_4$			
	(c)	Destructi	on of pat	hogens							
	(d)	Production	n of othe	er gases	like	SC	<sub>2</sub> ar	nd NO	2		* * *
	Wh	nich of thes	e statem	ents are	cor	rec	t?	2			
14	(1)	a, b, c and	l d				(2)		and c		
	(3)	a and b					(4)	b ar	nd c		

Question No.	Questions									
97.	Meth	nane formers are :								
	(1)	Obligate aerobes	(2)	Facultative bacteria						
	(3)	Obligate anaerobes	(4)	None of the above						
98.	Index of pollution in case of stream is:									
	(1)	Color and Turbidity	(2)	DO and BOD						
	(3)	Flora and Fauna	(4)	All of the above						
99.	The	maximum damage to the "Ta	ij Mahal'	" is because of the gas :						
	(1)	$CO_2$	(2)	CO						
	(3)	SO <sub>2</sub>	(4)	All of the above						
100.	Match the following:									
100	Set A	A	Set B							
	i	Acidity	I	Particulate matter						
	ii	Alum	II	Oils and grease						
	iii	Cyclone	III	Flocculation						
* 1	. iv	Skimming tank	IV	Carbon dioxide						
	(1)	i–III ii–I iii–IV iv–II	(2)	i–IV ii–III iii–I iv–II						
9 9	(3)	i–IV ii–II iii–III iv–I	(4)	i–II ii–III iii–IV iv–I						
				x : 2						



Concentration of CO in vehicular (1) Below 20% (3) 50% The size of the RSPM is:	exhaust (2) (4)	is approximately : 35% Above 70%
(3) 50% The size of the RSPM is:	88-000	
The size of the RSPM is:	(4)	Above 70%
(1) D.1. 10		
(1) Below 10 μm	(2)	15–20 μm
(3) 23 μm	(4)	above 25 μm
The reliability of Gaussian Plume	model is	3:
(1) 98%	(2)	95%
(3) 70%	(4)	50%
In the ECD of gas chromatograpl	h the elec	ctrons are:
(1) Captured by the determinan	t species	
(2) Generated by the determina	nt specie	98
(3) Generated by nitrogen gas		
(4) None of the above		
Which prevent the entry of foul g	as and a	llows ventilation?
(1) Intercepting trap	(2)	Fresh air inlet
(3) Gully trap	(4)	Flushing cistern
Electrostatic precipitators are uremoval of:	ised as p	pollution control device for the
(1) SO <sub>2</sub>		
(2) NOx		
(3) Suspended particulate mate	ter	
(4) Volatile fatty acids		
	The reliability of Gaussian Plume  1) 98%  2) 70%  In the ECD of gas chromatograph  1) Captured by the determinant  2) Generated by the determinant  3) Generated by nitrogen gas  4) None of the above  Which prevent the entry of foul gas  1) Intercepting trap  3) Gully trap  Electrostatic precipitators are used to see the control of:  (1) SO <sub>2</sub> (2) NOx  (3) Suspended particulate materials	The reliability of Gaussian Plume model is  1) 98% (2)  3) 70% (4)  In the ECD of gas chromatograph the elect  1) Captured by the determinant species  2) Generated by the determinant species  3) Generated by nitrogen gas  4) None of the above  Which prevent the entry of foul gas and a  1) Intercepting trap (2)  3) Gully trap (4)  Electrostatic precipitators are used as premoval of:  (1) SO <sub>2</sub> (2) NOx  (3) Suspended particulate matter

Question No.	Questions
7.	Ozone layer in the upper atmosphere is getting depleted owing to it reaction with pollutant like:
	(1) Hydrogen peroxide (2) Carbon monoxide
	(3) Cholofluoro carbon (4) Volatile fatty acids
8.	Choose the correct statement in the following:
	The rate of 5 day BOD exerted at any time is
	(a) Directly proportional to BOD satisfied
	(b) Directly proportional to BOD remaining
	(c) Inversely proportional to BOD remaining
	(d) Inversely proportional to BOD satisfied
- 1	Which of these statements are correct?
	(1) a, b, c and d (2) a, b and c
	(3) a and d (4) b and c
9.	Which of the following pairs are correctly matched?
	(1) SPM - a. Blood hemoglobin
	(2) NO - b. Vegetation
	(3) CO - c. Respiratory system
	(4) SO <sub>2</sub> - d. Building materials
10.	Which of the following pairs are correctly matched?
	(1) Reverberation time a. Time required to reduce noise by 60dB
	(2) NIPTS b. Responsible for permanent hearing loss
	(3) Sound foci c. Formed when sound waves are reflected from the convex surface
	(4) TTS  d. Responsible for temporary hearing loss

Question No.		Questions	
11.	The radioactive isotope of hydr	ogen is called :	
	(1) Radium	(2) Prot	tium
	(3) Deuterium	(4) Trit	ium
12.	The material used to control n	utrons are produ	aced by the use of:
	(1) Heavy water	· · · · · · · · · · · · · · · · · · ·	affin
*	(3) Graphite	(4) Tho:	rium
13.	Polythene is polymer of:		
	(1) Isobutane	(2) Eth	ylene
	(3) Vinyl chloride	(4) Prop	pylene
14.	The following residual chlor chlorination of water	ne compounds	are formed during the
	(a) NH <sub>3</sub> Cl	(b) NH	$\operatorname{Cl}_2$
	(c) HOCl	(d) OCl	
	(1) b, a, c, d	(2) a, b,	, d, c
	(3) a, b, c, d	(4) b, a,	, d, c
15.	Match the following:		
	Set A	Set B	
	i Recarbonation	1 Activated	carbon
	ii Chlorination	2 Trihalome	thanes
	iii Taste & odour	3 Lime soda	process
	iv Temperature inversion	4 Smog	
	(1) i–2 ii–1 iii–3 iv–4	(2) i-3	ii–2 iii–1 iv–4
	(3) i–1 ii–3 iii–4 iv–2	(4) i-4	ii–3 iii–2 iv–1

Question No.	Questions							
16.	In sanitary landfill, decomposition and chemical changes within organic content of the solid waste goes on. Consequential changes within land fix can be							
· ·	(a) Temperature changes within	n land fil	i.					
	(b) Product of gases like H,S, C	O, CO, 8	& CH,					
	(c) Destruction of pathogens	2	*					
	(d) Production of other gases li	ke SO, ai	nd NO,					
	Which of these statements are c	-						
	(1) a, b, c and d	(2)	a, b and c					
	(3) a and b	(4)	b and c					
17.	Methane formers are:							
	(1) Obligate aerobes	(2)	Facultative bacteria					
	(3) Obligate anaerobes	(4)	None of the above					
18.	Index of pollution in case of stre	am is:						
	(1) Color and Turbidity	(2)	DO and BOD					
	(3) Flora and Fauna	(4)	All of the above					
19.	The maximum damage to the "Ta	aj Mahal	" is because of the gas :					
	(1) CO <sub>2</sub>	(2)	CO					
	(3) SO <sub>2</sub>	(4)	All of the above					
20.	Match the following:							
	Set A	Set B						
	i Acidity	I	Particulate matter					
	ii Alum	II	Oils and grease					
	iii Cyclone	III	Flocculation					
	iv Skimming tank	IV	Carbon dioxide					
	(1) i–III ii–I iii–IV iv–II (3) i–IV ii–II iii–III iv–I	(2) (4)	i–IV ii–III iii–I iv–II i–II ii–III iii–IV iv–I					

Question No.	Questions								
21.	The bird Dodo became extinct because of:								
	(1)	its beautiful feather	(2)	its fearlessness					
	(3)	its curved beak	(4)	its melodious songs					
22.	Wh	ich place is often referred	to as the vall	ey of deaths?					
	(1)	Cubato, Brazil	(2)	Chernobyl, USSR					
÷1	(3)	Palo alto, USA	(4)	Nainital, India					
23.	Of t		hich can surv	vive without water for a whole					
	(1)	Wild Ass	(2)	Gembok					
	(3)	Addax	(4)	None of the above					
24.		ich group of plants is sens ployed as pollution indica		rne chemicals and is therefore					
	(1)	algae	(2)	lichens					
	(3)	fungi	(4)	bryophytes					
25.	The	e Moh's scale is measure o	f a mineral's :						
	(1)	Color	(2)	Density					
:e	(3)	Luster	(4)	Hardness					
26.		nich technique can map toole town by operating a ga		ion of sulphur dioxide over a e location?					
	(1)	LIDAR	(2)	Spectrophotometry					
	(3)	GC	(4)	Mass spectroscopy					
27.	Wh	nat is eco-freeze?		3 8 9					
	(1)	Halting ecological degra	dation						
	(2)	Stopping the ecological	disaster						
V.	(3)	Planning an ecological b	alance						
	(4)	Stopping the manufactu	ring of enviro	nment modification weapons					

Question No.	Questions									
28.	When a falling body has attained terminal velocity, the weight of the body is equal to:									
	(1) Drag force-buoyant force (2) Buoyant force-Drag force									
	(3) Drag force + buoyant force (4) None of the above									
29.	Manometer is a device used for measuring:									
	(1) Velocity of a point in a fluid (2) Pressusre at a point in a fluid									
	(3) Discharge of a fluid (4) None of these									
30.	The point through which the buoyancy force is acting is called:									
	(1) Centre of pressure (2) Centre of gravity									
	(3) Centre of buoyant force (4) None of these									
31.	Acid rain is global concern for the ecologist and environmental conservationists for which of the following reasons?									
	(a) The acid pollutants emitted in one country may be deposited as acid precipitation in other countries									
15 E	(b) Acid rain affects both aquatic system as well vegetation									
	(c) It has distinct effect on soil microbiology and chemistry									
	Select the correct answer using the codes given below:									
	(1) a, b and c (2) a and b									
	(3) a and c (4) b and c									

Question No.	Questions									
32.	Match the List I and List II and select the correct answer from the codes given below the lists:									
		List 1	(pollutants)	List II (Im	pacts)					
	A	Sulph	ur oxides		eyes and nose eaf damage, s		vn haze, causes rowth			
1 - 2011	В	Nitro	gen oxides				nausea, reduces ental processes			
	C	Carbo	on monoxide	3. Causes	cancer, retard	s plant grow	th			
	D	Hydr	ocarbon		4. Corrodes metal, causes acute and chronic leaf injury, attacks a wide variety of trees					
	Coc	les :			(a)					
			A	В	С	D				
	(1)		4	1	2 3					
	(2)		2	3	4	1				
	(3)		3	4	2	1	- 6			
		(4)	4	3	1	2				
33.			ne List I and I low the lists :	ist II and se	lect the corr	ect answer	from the codes			
		1	I (water aminant)	List II (Impacts)						
	A	Patho	ogens	1. Lead to the growth of undesired aquatic life						
*	В	Heav	y metals	2. Transmit communicable disease						
	C	Nutri	ents	3. Are common in landfill leachate and waste water						
	D	Susp	ended	4. Lead to	4. Lead to the development of sludge deposits					
	Co	des :	2			*				
a 21 _ 19			Α	В	C	D.D				
	(1) 4		3	2	1	4. **				
		(1)			4	842)	process and the second			
		(2)	2	3	4	1	18.			
				3	1	1 4	8			

Question No.		Questions	
34.	Pick out wrong combination	:	
	(1) Fe <sup>+2</sup> - Haemoglobin	(2)	Mg <sup>+2</sup> - Photosynthesis
	(3) Se <sup>+2</sup> - Kreb's cycle	(4)	Co+2 - Vitamin B <sub>12</sub>
35.	Blood is isotonic with:		
	(1) 0.16 M NaCl	(2)	Conc NaCl
	(3) 50% NaCl	(4)	30% NaCl
36.	The migration of the colloida is known as:	l particles und	ler influence of an electric field
	(1) Electrolysis	(2)	Brownian movement
ton to	(3) Cataphoresis	(4)	Dialysis
37.	Which of the following is cor	rect statement	t about CCl.?
	(1) CCl <sub>4</sub> is used to extinguis		
			water due to non availability
	(3) $CCl_4 \xrightarrow{Ag NO_3} No ppt$		
	(4) All of the above		
38.	If the liquid is dispersed in so	olid medium,tl	hen this is called as:
	(1) Sol	(2)	emulsion
	(3) liquid aerosol	(4)	Gel
39.	In which case, the order of ac	cidic strength	is not corrected ?
	(1) $HI > HBr > HCl$	(2)	$HIO_4 > HBrO_4 > HClO_4$
	(3) HClO <sub>4</sub> >HClO <sub>3</sub> >HClO <sub>2</sub>	(4)	

Question No.		Questions										
40.	The	correct	t orde	r of ac	idic stre	ngth	of the	Carbo	xylic	acid is	3:	
	(1) Formic acid < benzoic acid < acetic acid											
	(2)	Formi	c acid	l < ace	tic acid ·	 benz	oic ac	id				
	(3)				ic acid <							
	(4)	Acetic	acid	< benz	oic acid	< forr	nic ac	id ———				
41.		ch List n belov			II and	select	the c	orrect	answ	ver usi	ng the	codes
		List I						List	II			- Fi
	a.	Sludg	e disp	osal			1.	See	ding			
	b.	Sludg	e dige	estion	ofenn bross		2.	Bio	ilters			
	c.	Aerob	ic act	ion			3.	Lag	gonin	g		
	d.	Recirc	culation	on			4.	Con	tact k	oed		
	Cod	es:										
	1	A B	C	D				Α	В	C	D	50. 60 <sub>0</sub>
	(1)	3 1	4	2			(2)	3	1	2	4	
	(3)	1 3	2	4			(4)	1	3	4	2	
42.	Rin	glemar	nn's s	cale is	used to	:						
	(1)	Meas	ure C	0								
	(2)	Meas	ure C	0,	¥ =							
	(3)		100	~	smoke				*.			
	(4)	Grade	e auto	omobile	e exhaus	st gas						
43.	Wh	ich of t	he fo	llowing	g pair is	not co	rrectl	y mat	ched	?		
	(1)	BOD				Str	ength		37			
	(2)	Meth	ane			Pro	duct	of ana	erobio	c decor	nposit	ion
A 10 5	(3)	COD								waste v	18-81	
	(4)	Nitra	ite					oglobir				

Question No.	1				Que	stions				
44.	The atmosphere extends up to height of 10,000 km. It is divided into four thermal layers.									
	(a)	Mesosphere				(b)	Stratosphere			
	. (c)	Thermosphe	re			(d)	Troposphere			
3.	The	correct sequevard is	ence o	f these	laye	rs star	rting from the surface of earth			
¥ **	(1)	a, d, a, c				(2)	d, b, a, c			
	(3)	d, b, c, a				(4)	b, d, c, a			
45.	Coa	l based therm	al pow	er plant	stat	ions po	ollute the atmosphere by adding			
	(1)	NOx and SO				(2)	NOx, SO <sub>2</sub> and SPM			
	(3)	NOx, SO <sub>2</sub> , SI	PM and	d CO		(4)	NOx, SPM and CO			
46.	Mat give	ch List I with n below the li	List :	II and s	elec	t the c	correct answer using the codes			
		List I					List II			
		(Cause)					(Effect)			
30	a.	Carbon mono	xide			1.	Acid rain			
22	b.	Carbon dioxio	de			2.	Explosion			
	c.	Methane				3.	Asphyxiation			
3 = 1 ×	d.	Sulphur diox	ide			4.	Green house effect			
	Code	es:								
		A B C	D				A B C D			
	(1)	2 3 1	4			(2)	3 4 2 1			
	(3)	1 3 4	2			(4)	4 2 1 3			

Question No.	Questions	
47.	Choose the correct answer:	
	The stabilization of sewage in oxidation pond is due to action of:	
	(1) Aerobic and anaerobic bacteria	
= ====================================	(2) Algae and bacteria	
	(3) Organic and inorganic compound	
	(4) Algae and protozoa	
48.	Inversion is characterized by:	
	(1) Upper cold and lower warm layer	
	(2) Upper warm and lower cold layer	
	(3) Both of the above	
	(4) None of these	-
49.	Asbestos 'Silent Killer' can cause death of worker due to:	
	(1) Heart attack	
	(2) Lung cancer	
	(3) Kidney failure	
	(4) Brain damage	
50.	Which is the first indoor pollutant of which the masses become aware	?
	(1) Carbon dioxide	
	(2) Formaldehyde	
	(3) Radon	
	(4) Ozone	

Question No.	Questions
51.	For an average Indian city, solid waste generated may be assessed per capita per day as:
	(1) $0.2 \text{ kg}$ (2) $0.4 \text{ kg}$
	(3) 1.0 Kg (4) 2.0 kg
52.	At break point of chlorination:
100	(1) Chlorine is used to oxidize
	(2) Residual chlorine is zero
-	(3) Residual chlorine is maximum
	(4) Residual chlorine reappears
53.	The correct statement of comparison of ultimate BOD, COD, Theoretical oxygen demand (THOD) and 5 day BOD is:
	(1) $BOD\mu > COD > ThOD > BOD_5$
.1	(2) $COD > ThOD > BOD_{\mu} > BOD_{5}$
	(3) ThOD > COD > BOD $\mu$ > BOD <sub>5</sub>
	(4) $COD > BOD_{\mu} > BOD_{5} > ThOD$
54.	The alkalinity of a water sample is $80  \mathrm{mg/L}$ as $\mathrm{CaCO_3}$ . If the total hardness of the water sample is $112  \mathrm{mg/L}$ as $\mathrm{CaCO_3}$ . What will be the carbonate and non-carbonate (in $\mathrm{mg/L}$ as $\mathrm{CaCO_3}$ )?
	(1) 32 (2) 192
	(3) 152 (4) 114
55.	If 20 lb of 10% strength solution is mixed with 30 lb of 1% strength solution. What is the percent strength of the mixture?
× = .	(1) 4.6 (2) 6.6
	(3) 46 (4) 2.6

 $PHD\text{-}URS\text{-}EE\text{--}2018\text{-}Environmental Science-Code-D}$ 

Question No.	Qu	estions	
56.	Which of the instrument is based	on Lamb	ert Beer's law?
7 12	(1) Spectrophotometer	(2)	GLC
F (4)	(3) HPLC	(4)	AAS
57.	The chlorine dosage for water is 2		
	30 minute contact time is found demand (in mg/L)?	to be 0.	7 mg/L. What is the chlorine
	(1) 2.0	(2)	1.4
	(3) 2.7	(4)	3.4
58.	Which value of coefficient of correlation between x and y variables?		
	(1) -0.33 (3) 0.565	(2)	-0.950 0.750
59.	Permissible limits of $SO_2$ in resid	ential are	as (24h basis) as per NAAQMS
	is: (1) 60 mg/m <sup>3</sup>	(2)	$120\mathrm{mg/m^3}$
	(3) 80 mg/m <sup>3</sup>	(4)	$30 \mathrm{mg/m^3}$
60.	Which of the following industries from the government?	does not r	equire environmental clearance
	(1) Cement industry	(2)	Paper and pulp industry
	(3) Sugar industry	(4)	Distillery
34 9		-	

No.	1		Que	stion	s				
61.	M	atch list I (Treatment Units e correct answer using the c	) wi	th Lis	t II (T	ype of	proce	ss) and	l sele
I .		List I		Lis		511C 11	.565.		
	(T)	reatment Units)	(T	pe of	proces	ss)			
	a.	Trickling filter	1.		biotic		s je s		
	b.	Activated sludge process	2.		ended		on		
	. c.	Oxidation ditch	3.		pende				
	d.	Oxidation pond	4.		iched g				
	Cod	les :			torrou g	,10 W LI	L		
		A B C D			Α	D		_	
	(1)	3 4 2 1		(2)		В	C	D	
	(3)	3 4 1 2		(4)	4	3	1 2	2 1	
62.	Fur	ction of algae in oxidation p	ond	76.50					
	(1)	Provide a mat over surface evaporation of water			kidatio	n pon	d so a	s to pr	event
	(2)	Provide oxygen for bacteria	tod	lamad	lo oues				
	(3)	Provide a greenish appeara	neo	to the	e orga	nic m	atter		
	(4)	Prevent the odour nuisance		ro riie	pond		175		
	Whe	n sewage enters a following en is due to :	g riv	er, th	e rapio	d depl	etion	of diss	olved
63.	oxyg								
9.	10000000 ==		he ri	ver					
	(1)	Change in temperature of the			nd wa	sto			
	(1) (2)		he r	iver a	nd was	ste			

Question No.	Questions	
64.	Which of the pollutant or pairs of pollutants is formed due to phreactions?	otochemical
	(1) CO alone (2) O <sub>3</sub> and PAN	1
	(3) PAN and NH <sub>3</sub> (4) NH <sub>3</sub> and CO	
65.	Consider the following pair of the treatment units and removed:	impurities
	(a) Grit chamber Sand and	silt
*3	(b) Detritus tank Organic m	atter
	(c) Primary sedimentation tank Suspende	d impurities
	(d) Aeration tank of activated sludge process Oil and gr	ease
	Which of the pairs are correctly matched?	
E #	(1) a and b (2) a, b, c and d	
	(3) b, c and d (4) a and c	AD 1
66.	At an incubation temperature of 20°C, if initial DO and fin after 5 days incubation period on a 2% sample of sewage, are 5.5 mg/L, respectively. Then the BOD will be:	
	(1) 50 mg/L (2) 150 mg/L	
	(3) 250 mg/L (4) 350 mg/L	
67.	The trap used for water closet is called:	
	(1) Gully trap (2) p-type	, 100 J. 100
	(3) Intercepting (4) Anti-siphon tra	р

Question No.		Questions	
68.	connected with its removal) a	olid) with Lis	st II (Unit operation or proces correct answer using the code
	given below the lists :  List I		
	a. Dissolved solids		List II
1 14		1.	Sedimentation
	Bolids	2.	Reverse osmosis
	c. Volatile solids	3.	Coagulation
	d. Settleable solids	4.	Digestion
	Codes:		
1	A B C D		A B C D
	(1) 2 3 4 1	(2)	3 2 4 1
2, 31	(3) 2 3 1 4	(4)	3 2 1 4
69.	Which of the materials are us and leachate movements?	ed as landfill	sealants for the control of gas
	(a) Lime	(b)	Sand
	(c) Bentonite	(d)	Fly ash
	(e) Butyl rubber		
	Select the correct answer using	ng the codes g	given below:
	(1) a, b and c	(2)	d and e
	(3) c and e	(4)	a, b and d
70.	Which of the following air pollsmog?	2 37 a55	
	(a) Oxides of nitrogen	(b)	Ozone
	(c) Unburnt hydrocarbons	(d)	Carbon monoxide
	Code:	7.7	~ OII III OII OAI UC
	(1) a and b	(2)	c and d
	(3) b and d	(4)	a and d

Question No.	Que	estions	
71.	Notch is a device used for measur	ing the :	
* * *	(1) Rate of flow through pipes		
	(2) Rate of flow through a small of	channel	
	(3) Velocity through a pipe		
	(4) Velocity through a small char	nnel	
72.	Rotameter is used for measuring	:	
	(1) Density of fluid	(2)	Velocity of fluid in pipes
	(3) Discharge of fluids	(4)	Viscosity of fluids
73.	One horse power is equal to:		
	(1) 746 watts	(2)	736 watts
	(3) 550 watts	(4)	75 watts
74.	Beat is equal to:	er er e	
	(1) One oscillation	(2)	Twice the oscillation
	(3) Half the oscillation	(4)	None of these
75.	A perfect gas obeys		
	(1) Boyle's law	(2)	Charle's law
	(3) Boyle's and Charle's law	(4)	None of these
76.	The sum of internal energy an called:	d produ	act of pressure and volume is
	(1) Entropy	(2)	Enthalpy
	(3) Heat supplied	(4)	None of these
77.	The compression ratios for engin	e is:	
	(1) 5 to 8	(2)	15 to 20
	(3) 3 to 6	(4)	30 to 40

Question No.		Questions	5
78.	One bar is equal to:		
	(1) 1.033 kgf/cm <sup>2</sup>	(2)	$14.7\mathrm{kgf/cm^2}$
	(3) 1.0197 kgf/cm <sup>2</sup>	(4)	$1  \mathrm{kgf/cm^2}$
79.	Of the following gases, which on	e suffocat	tes living beings even to death
	(1) carbon dioxide	(2)	carbon monoxide
	(3) hydrogen sulphide	(4)	sulphur dioxide
80.	A gas follows the law $PVn = C$ , o as:	f the valu	te of $n = 1$ , the process is know
	(1) adiabatic	(2)	isothermal
	(3) isotropic	(4)	polytrophic
81.	Tetraethyl Lead is added to gase	oline to :	
	(1) Lubricate internal engine pa		
	(2) Increase the 'ife of catalytic	converto	$\mathbf{r}$
3.0	(3) Prevent engine a knock and		
			nbustion and improve milage
82.	The green house gas ${\rm CO}_2$ is chief		
e - Vivo	(1) Ionosphere	(2)	Stratosphere
	(3) Troposphere	(4)	Mesosphere
83.	Acid precipitation kills the fish by	y causing	the release of:
-	(1) Carbon monoxide	(2)	Mercury
	(3) Aluminum ions	(4)	Anticoagulants

Question No.		Questions	estions				
84.	Which of the following is th	ne correct order	of increase in atomic size?				
	(1) $Mg < Na^+ < F^- < Al$	(2)	$Na^+ < F^- < Al < Mg$				
	(3) $Na^+ < Al < Mg < F^-$	(4)	$Na^+ < F^- < Mg < Al$				
85.	Which of the following is co	orrectly matche	d ?				
	(1) Copper-bauxite	(2)	Iron-galena				
2.0	(3) Mercury-cinnabar	(4)	Lead-magnetite				
86.	Which satellite recorded th	ne presence of a	n ozone hole ?				
	(1) TIROS-N	(2)	GOES				
- W. V.	(3) NIMBUS-7	(4)	Landstat-3				
87.	Who changed the name of l for afforestation, to subabu		the popular tree species suited				
16	(1) Manibhai Desai	(2)	Lal Bahadur Shastri				
	(3) A.K.N. Reddy	(4)	Indira Gandhi				
88.	The heavy metal that has see for a type of poisoning call		as a fun <b>gicide and is responsibl</b> e kes is ?				
	(1) Mercury	(2)	Lead				
	(3) Cadmium	(4)	Arsenic				
89.	The major route for widesp	read distributi	on more persistent pesticide is				
		44.					
3 1 8	(1) soil	(2)	water				
	(1) soil (3) living organism	(2) (4)	water atmosphere				
90.		(4)	atmosphere				
90.	(3) living organism	(4)	atmosphere				

Question No.	0							19
91.	Producer gas is mixture of:  (1) Carbon monoxide and nitrogen gas  (2) Carbon dioxide and hydrogen gas  (3) Hydrogen and water vapour  (4) Oxygen and nitrogen gas							
92.	The di	gestion proces naerobic eduction		(2) Oxio	ogas pla lation obic dige		ermed :	
93.	(1) Su	s one of the torain damage alphur itrogen oxide	wo most to and luekae	oxic chemic	cals four n is other zene	nd in r	petrol, wh	ich c
	\-/ - ·-	0		(A) (D) 101				
94.	The pre (1) Re (3) Ac	esence of hydreduction in bio	ogas produ	hide in biog ction rate	(2) (4)	Corro None	sive effect	ove
94.	The pre (1) Re (3) Ac Match	esence of hydreduction in bio	ogas produ List II and	hide in biog ction rate	(2) (4)	Corro None	of the abo	ove
	The pre (1) Re (3) Ac Match t	esence of hydreduction in bicets as catalyst the List I and elow the lists	ogas produ List II and	hide in biog ction rate d select the	(2) (4)	Corro None	of the abo	ove
X	The pro (1) Re (3) Ac  Match given b	esence of hydreduction in bicets as catalyst the List I and elow the lists  List I  Hard acid	ogas produ List II and	hide in biog ction rate d select the	(2) (4)	Corro None	of the abo	ove
	The pre (1) Re (3) Ac  Match e given b	esence of hydreduction in bicets as catalyst the List I and elow the lists  List I  Hard acid  Soft acid	ogas produ List II and	hide in biog ction rate d select the List II SO <sub>4</sub> <sup>2-</sup> RS <sup>+</sup>	(2) (4)	Corro None	of the abo	ove
	The pre (1) Re (3) Ac  Match is given b  A  B  C	esence of hydreduction in bicets as catalyst the List I and elow the lists  List I  Hard acid  Soft acid  Hard base	ogas produ List II and	hide in biog ction rate d select the List II SO <sub>4</sub> <sup>2-</sup> RS <sup>+</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup>	(2) (4)	Corro None	of the abo	ove
	The pro (1) Re (3) Ac  Match is given be  A B C D	esence of hydreduction in bicets as catalyst the List I and elow the lists  List I  Hard acid  Soft acid  Hard base  Soft base	ogas produ List II and	hide in biog ction rate d select the List II SO <sub>4</sub> <sup>2-</sup> RS <sup>+</sup>	(2) (4)	Corro None	of the abo	ove
	The pre (1) Re (3) Ac  Match is given b  A  B  C	esence of hydreduction in biosets as catalyst the List I and elow the lists  List I  Hard acid  Soft acid  Hard base  Soft base	Dgas produ	hide in biog ction rate d select the List II SO <sub>4</sub> <sup>2-</sup> RS <sup>+</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> SO <sub>3</sub>	(2) (4)	Corro None answe	of the abo	ove
X	The pro (1) Re (3) Ac Match given b  A B C D Codes:	esence of hydreduction in bioests as catalyst the List I and elow the lists  List I  Hard acid Soft acid Hard base Soft base	Dgas produ List II and:	hide in biog ction rate d select the List II SO <sub>4</sub> <sup>2-</sup> RS <sup>+</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> SO <sub>3</sub>	(2) (4)	Corro None answe	of the abo	ove
	The pro (1) Re (3) Ac Match given b  A B C D Codes:	esence of hydreduction in bice ets as catalyste the List I and elow the lists  List I  Hard acid Soft acid Hard base Soft base  A  4	Dist II and :	hide in biogction rate  d select the  List II  SO <sub>4</sub> <sup>2-</sup> RS <sup>+</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> SO <sub>3</sub> C  2	(2) (4)	Corro None answe	of the abo	ove
	The pre (1) Re (3) Ac Match given b  A B C D Codes:	esence of hydreduction in bice ets as catalyst the List I and elow the lists  List I  Hard acid Soft acid Hard base Soft base  A  4  4	B 1 2	hide in biogration rate  d select the  List II  SO <sub>4</sub> <sup>2-</sup> RS <sup>+</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> SO <sub>3</sub> C  2  1	(2) (4)	Corro None answe	of the abo	ove
	The pro (1) Re (3) Ac Match given b  A B C D Codes:	esence of hydreduction in bice ets as catalyste the List I and elow the lists  List I  Hard acid Soft acid Hard base Soft base  A  4	Dist II and :	hide in biogction rate  d select the  List II  SO <sub>4</sub> <sup>2-</sup> RS <sup>+</sup> S <sub>2</sub> O <sub>3</sub> <sup>2-</sup> SO <sub>3</sub> C  2	(2) (4)	Corro None answe	of the abo	ove

No.					Questi	ons			
96.			ist I and I the lists :	ist II an	d select	t the corr	ect answer	from the code	
9 ×		1	I Particula osphere)	te of the		List-II (Characteristics of the particulate)			
	A	Aero	osol		1	. Combina	tion of smok	e of fog	
	В	Fly a	ash		2	. Minute p	articles with	water	
	C	Fum	e		3	. Emitted	by coal burni	ng	
	D	Smo	g		4	. Made up	of metal vap	our	
	Codes	:		ž .					
	0.5	* = =	Α	В		С	D		
	. (1)		2 3		1		4		
	(2)		2	3		4	1		
	(3)		3	4	2		1		
97.	(4)	- 3	•	3 4		1	2		
	(4)		3	4		1	2		
97.	Match	the l	16.46	List II ar	nd selec			from the cod	
97.	Match	n the l	List I and the the lists:	List II ar		et the cor			
97.	Match given	n the l	List I and the the tists:  Element)	List II ar	List II	et the cor	rect answer	)	
97.	Match given	the lbelow	List I and to the lists:  Element)  Tium	List II ar	List II	et the correction	rect answer	)	
97.	Match given  A A B	n the l below List I (	List I and the lists:  (Element)  (itim	List II ar	List II  1. Nee  2. Me	(Function eded for no tabolism o	rect answer	2	
97.	Match given  A A B C C C	the low	List I and the lists: (Element) (inium)	List II ar	List II 1. Nee 2. Mee 3. Ele	(Function ded of for no tabolism of taboli	rect answer  in the body  ormal growth  f Vitamin B1	2	
97.	Match given  A A B C C C	the leader	List I and the lists: (Element) (inium)	List II ar	List II 1. Nee 2. Mee 3. Ele	(Function ded of for no tabolism of taboli	rect answer  in the body  ormal growth  f Vitamin B1	2	
97.	Match given  A A B C C C D	the leader	List I and the lists:  (Element)  nium	List II ar	List II 1. Nee 2. Mee 3. Ele	(Function ded of for no tabolism of taboli	rect answer  in the body  ormal growth  f Vitamin B1	2	
97.	Match given  A A B C C C D	the leader to th	List I and the lists:  Element)  nium	List II ar	List II  1. Nee  2. Mee  3. Ele	(Function eded for no tabolism of tabolism of tabolism of tabolism of tein transf	rect answer  in the body  ormal growth  f Vitamin B1  sport enzyme  er in serum	2	
97.	Match given  A A B C C C D 1  Codes	the leader	List I and the lists:  Element)  nium  A	List II ar	List II  1. Nee  2. Mee  3. Ele	(Function eded for no tabolism of tabolism of tein transf	rect answer  in the body  ormal growth  f Vitamin B1  oport enzyme  er in serum	2	
97.	Match given  A A B C C C C D 11  Codes  (1)	the leader to th	List I and the lists:  Element)  nium  A	List II ar	List II  1. Nee  2. Mee  3. Ele	(Function eded for no tabolism of tabolism of tabolism of tabolism of tabolism of tein transformation transform	rect answer  in the body  ormal growth  f Vitamin B1  oport enzyme  er in serum  D  4	2	

No.	Questions									
98.	Match the List I and List II and select the correct answer from the cod given below the lists:									
		List	I	List II						
	A Food chain			1. Relat	ionship of all the	organisms in	a given hahitat			
	В	Food	web	2. Distir	nct communities	of a particular	. grven naonat			
	С	Biom	nes	3. Produ	icers, consumers	and decompo	sers is given in			
	D	Auto	troph	4. Photo	synthesis					
	Cod	es:	+ 2 <sup>th</sup> - 2 ·							
	17.7		A	В	С	D	]			
	(	1)	1	2	3	4				
	(	2)	3	1	2	4	* 18			
	(3)		3	4	2	1				
	(	4)	4	3	2	1 . 1 .				
99.										
99.	Mat give	ch the n belo List I	ow the list	d List II an s : List II	d select the co	rrect answei	from the code			
99.	give	n ber	ow the list	List II  1. Indir	rectly supplies	all the energ				
99.	A B	List I Bioma	ass	List II  1. India susta 2. Goo	rectly supplies aining life on the	all the energ	gy required for			
99.	A B	List I Bioma	ass	List II  1. India susta 2. Goo solar 3. An i	rectly supplies	all the energe earth	gy required for			
99.	A B C	List I Bioma Bioga Petro-	ass	List II  1. Indirectors 2. Good solar 3. An intercetors	rectly supplies aining life on the d means of stor energy mportant solution	all the energe earth ring diffuse a	gy required for			
99.	A B C	List I Bioma Bioga Petro- Solar	ass s plants	List II  1. Indirectors 2. Good solar 3. An intercetors	rectly supplies aining life on the d means of sto energy mportant solution	all the energe earth ring diffuse a	gy required for			
99.	A B C D Code	List I Bioma Bioga Petro- Solar es:	ass s plants	List II  1. India susta 2. Goo solar 3. An i rural 4. Sour	rectly supplies aining life on the d means of sto energy mportant solution	all the energe earth ring diffuse a	gy required for			
99.	A B C D Code	List I Bioma Bioga Petro- Solar es:	ass plants energy  A 4	List II  1. India susta 2. Goo solar 3. An i rural 4. Sour	rectly supplies aining life on the dimeans of store energy mportant solution areas	all the energing earth ring diffuse and on to present	gy required for			
99.	A B C D Code	List I Bioma Bioga Petro- Solar es:	ass plants energy  A 4 3	List II  1. India susta 2. Goo solar 3. An i rural 4. Sour	rectly supplies aining life on the dimeans of storenergy mportant solution areas	all the energing earth ring diffuse and to present drocarbon	gy required for			
99.	A B C D Code	List I Bioma Bioga Petro- Solar es:	ass plants energy  A 4	List II  1. India susta 2. Goo solar 3. An i rural 4. Sour	rectly supplies aining life on the dimeans of store energy mportant solution areas  C  C  2	all the energing earth ring diffuse and to present drocarbon	gy required for			

No.		.9)				stions	- 1 - 12	4.		
100.			e List I and I ow the lists :	List	II and sel	lect the co	orrect a	nswer	rom the	code
2.		List I	(Pollutant)	Lis	t II (Sour	ces)	1.2			
	Α	CO		1.	Industria	l wastage				
	В	NO <sub>2</sub>		2.	Crushing	and burni	ng of co	al		
	C	SO <sub>2</sub>		3.	Incomple	ete burning	g of carb	onaceou	s fuel	
	D	H <sub>2</sub> S		4.	Electric puse fossi	power gen l fuels	erators a	nd autor	nobiles, v	vhich
	Cod	les:								
			. A	1	В	C		D		
		(1)	4		3	2		1		
it.		(2)	2	1.0	3	4		1		
-		(3)	3		4	1		2		
	-	(4)	3		4	2		1		
				A A						
						1 1				

Mahasishi Dayanand University Roblak Depth of Environmental Sciences

M. Phil/Ph.D/URS Entrance Examination Answer Key

	PITON	ies ite	7		
		Answ	er Key of	Env Sci.	
	Sr no.	Α	В	С	D
	1	1		1	2
	2	1		1	3
	3	2		3	2
	4	2		3	3
	5	2		1	3
	6	1		3	2
	7	4		ļ	2
ŀ	8	1	4		3 2
ŀ	9	3	2		2 3
1	10	4	4		2 1
ŀ	11	1	1		3
ŀ	12	1	3		2 4
ŀ	13	3	3		4 2
ŀ	14	3	2		3 1
ŀ	15 16	1	2		3 2
ŀ	17	3	2	3	
H	18	4	2	4	
-	19	2	2	1	_
r	20	4	2	4	
	21	3	2	2	
	22	2	1	1	
	23	4	4	1	1
	24	3	1	2	3
	25	3	2	2	2
	26	3	3	1	1
	27	4	3	4	2
	28	1	2	1	3
	29	4	3	3	2
_	30	2	1	4	
_	31	2	3	1	3
_	32	1	4	3	1
_	33	3	2	3	3
_	34	2	1	2	3
	35 36	4	2	2	1
_	37	1	1	2	3
	38	2	3	2	. 4
	39	2	2	2	4
	40	3	3 2		2
	41	2	2	2	4
	42	3	1	2	1
	43	2	3	3	3
	44	3	2	1	3
	45	3	4	1	3 2 2
	19 to 19			1	

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46	2	1	1	
47	2	2	1	2
48	3	3	1	2
49	2	2	2	2
50	2	3	3	2
51	3	3	2	2
52	4	2	1	2
53	2	4	3	4
54	1	3	2	3
55	2	3	4	1
56	1	3	1	1
57	3	4	2	1
58	2	1	3	2
59	3	4	2	1
60	2	2	3	3
61	2	2	4	4
62	4	3	1 .	2
63	3	2	4	2
64	1	3	1	2
65	1	3	2	4
66	1	2	3	2
67	1	2	3	2
68	2	3	2	1
69	1	2	3	3
70	3	2	1	4
71	4	2	4	2
72	1	4	2	3
73	4	3	2	2
74	1	1	2	3
75	2	1	4	3
76 77	3	1	2	2
78		1	2	2
79	3	2	1 '	
80	1	1	3	2
81	4	3	4	2
82	2	1	1	3
83	2	2	1	2
84	2	2	3	4
85	4	2	3	3
86	2	1	3	3
87	2	4	4	3
88	1	1	4	1
89	3	3	2	4
90	4	4	4	2
91	1	4	3	1
92	3	2	4	1
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0.0			Commence of the state of the st	
93	3	2	2	2
94	2	2	1	
95	2	4	2	
96	2	2	2	2
97	2	2	1	1
98	2		3	4
99		1	2	1
	2	3	3	3
100	2	4	2	4

Gerts

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