SET-"Z"

(DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

(Ph.D/URS-EE - JAN. 2022)

ENVIRONMENTAL Sr. No.

Code

SCIENCE

Time: 1¼ Hours	Total Quest		Max. Marks: 100
Roll No Name :		-):
Mother's Name :		Date of Examin	nation:
			Cultar Taranianila tom

(Signature of the candidate)

(Signature of the Invigilator)

10129

CANDIDATES MUST READ THE FOLLOWING INFORMATION/ INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

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Sheet.

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Questio No.	n	Questions		
1.	W	Which of the foillowing is not present in soluble state in alkaline soils?		
	(1)	Potassium	(2)	Calcium
	(3)	Nitrates	(4)	Phosphorous
2.	W	nich of the followir	ng artificial chro	omosome has largest carrying capacity?
	(1)	BAC	(2)	YAC
٠	(3)	PAC	(4)	MAC
3.	Wh	ich is the correct	sequence for in	mpact assessment process in EIA?
	(1)	(1) Prediction of impacts → Identification of impacts → Description of environment → Evaluation of impacts → Identification of mitigation needs.		
	(2)	Identification of impacts \rightarrow Iden		rediction of impacts \rightarrow Evaluation of tigation needs.
	(3)	(3) Identification of impacts → Description of environment → Prediction of impacts → Evaluation of impacts → Identification of mitigation needs.		
	(4)	-		Identification of impacts → Prediction npacts → Identification of mitigation
4.	The	The most commonly used method for desalinization of water is:		
	(1)	Distillation	(2)	Reverse osmosis
	(3)	Ion-exchange	(4)	Electrodialysis.

Question No.	Questions
5.	Which of the following pertains to "high-waste approach" in dealing with the solid and hazardous wastes?
	(1) Composting (2) Recycling
	(3) Burying and burning (4) Reusing
6.	In most of the studies, a large sample size is anticipated to
	(1) Maximize the sampling error
	(2) Get a low level of precision
	(3) Maximize the standard deviation
	(4) Get a high level of precision.
7.	The geometric mean of 4, 8 and 16 is
	(1) 9.1 (2) 4.6
	(3) 8.0 (4) 10.2
8.	Copper (Cu) is classified according to its geochemical affinity as:
	(1) Chalcophile element
	(2) Siderophile element
	(3) Atmophile element
	(4) Lithophile element
9.	Which of the following is used in manufacturing flexible plastic bags and
	sheets?
al Egyment	(1) Polyethylene terephthalate
	(2) Polystyrene
	(3) TEFLON
	(4) Low density polyethylene

Question No.	Q	ıestions	
10.	Which one of the following is a	non-formal environment education and	
	awareness programme?		
	(1) Environmental appreciation	courses	
	(2) Environmental Education in		
	(3) National Environment Aware	eness Campaign	
	(4) Environmental Management	Business Studies	
11.	Which of the following is not	a method for ex-situ conservation of	
	biodiversity?		
	(1) In vitro repositories (2)	Cryobanks	
	(3) Botanical gardens (4)	National parks	
12.	The Protection of Plant varieties and Farmers Rights Act was passed by		
	the Indian Parliament in		
	(1) 1991 (2)	2001	
	(3) 2014 (4)	2002	
13.	Which of the following BOD level	waste water is permitted to be released	
	inlands by industries under Water (Prevention and Control of Pollution)		
	Act, 1974?		
	$(1) 80 \mathrm{mg/l} \qquad (2)$	$30\mathrm{mg/l}$	
	(3) $150 \mathrm{mg/l}$ (4)	100 mg/l	
14.	Which of the following is a scorabl	e marker ?	
	(1) nptII (2)	hptIV	
	(8) but	gus Science) Code-A	

Question No.	Questions
15.	National Land Reform Policy stresses on
	(1) Tenancy reforms
	(2) Natural regeneration
	(3) Restoration of ecological balance
	(4) Watershed approach
16.	Which is not true about the idea carrier matrix for enzyme immobilization?
	(1) Low cost
	(2) Regenerability
	(3) Stability
	(4) Reduction in enzyme specificity
17.	In which years, the Ramsar Convention on Wetlands was held and come into force?
	(1) 1965, 1969
	(2) 1961, 1965
	(3) 1971, 1975
	(4) 1981, 1985
18.	The Stockholm Convention is a global treaty to protect humans from
	(1) Toxic gases
	(2) Hospital acquired infections
	(3) Persistent organic pollutants
	(4) Carbon monoxide

Question No.	Questions
19.	Which of the following is not a restriction endonuclease?
	(1) DNA ligase (2) Bam H1
	(3) Eco R1 (4) Hind III
20.	Which of the following is the right match concerning the toxic metal and associated adverse impact?
	(1) Zn-Brain tissue damage (2) Ni-Keratosis
	(3) Ar-Renal poisoning (4) Hg-Pulmonary disease
21.	Amount of 8-hydroxyquinoline (M.W. 145.16) required for preparing 1000 ml of 5 ppm solution is:
	(1) 1.45 mg (2) 5 mg
	(3) 7.25 mg (4) 14.5 mg
22.	Long term stability of a community depends on :
	(1) Biodiversity (2) Resource partitioning
v	(3) Biotic component (4) Succession
23.	The external appearance of the community which may be described on the
	basis of dominant plants, density height, colour etc. of plants is known
	as:
	(1) Periodicity (2) Phenology
	(3) Physiognomy (4) Aspection
24.	IUCN headquarters is at:
	(1) Paris, France (2) Vienna, Austria
	(3) Morges, Switzerland (4) New York, USA

No.	Questions			
25.	As compared to CO ₂ , methane has global warming potential of:			
	(1) 5-10 times more (2) 20-25 times more			
-	(3) 40-45 times more (4) 60-65 times more			
26.	Laterite soil contains more of			
	(1) Manganese and Silicate			
	(2) Magnesium and Boron			
	(3) Iron and Aluminium			
,	(4) Potassium and Lead			
27.	Universally accepted method for isolating semivolatile organic compounds from their matrices is			
	(1) Solvent extraction (2) Double infiltration			
- 1				
	(3) Sedimentation technique (4) Permeation			
28.	The kind of association where both the population are benefitted, but no			
28.				
28.	The kind of association where both the population are benefitted, but no essential for the survival of either population is referred to as:			
28.	The kind of association where both the population are benefitted, but no essential for the survival of either population is referred to as: (1) Competition (2) Exploitation			
28.	The kind of association where both the population are benefitted, but no essential for the survival of either population is referred to as: (1) Competition (2) Exploitation (3) Amensalism (4) Protocooperation Species diversity increases as one proceeds from			
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Question No.			Que	estions
30.		ich of the following square metere?	ecosystems	has the lowest net primary production
	(1)	A grassland	(2)	An open ocean
	(3)	A Coral reef	(4)	A tropical rain forest
31.	Bro	wn forest soil is als	o known as	
	(1)	Mollisols	(2)	Altisols
	(3)	Spodosols	(4)	Entisols
32.	Est	ablishment of a spe	cies in a nev	v area is referred to as
	(1)	Ecesis	(2)	Aggregation
·	(3)	Stabilization	(4)	Migration
33.	The	Zooplankton of cor	tinental she	elf is generally the same as in
	(1)	Estuary region	(2)	Pelagic region
	(3)	Neritic region	(4)	Benthic region
34.	'Me	sothelioma' is cause	ed by toxicity	y of
	(1)	Mercury	(2)	Lead
	(3)	Arsenic	(4)	Carbon monoxide
35.	5. A volcanic eruption will be violent if there is		if there is	
*	(1)	High silica and hig	gh volatiles	
	(2)	High silica and lov	v volatiles	
	(3)	Low silica and low	volatiles	
	(4)	Low silica and high	h volatiles	. •

Question No.	Questions
36.	Clay minerals are
	(1) Tectosilicates (2) Sorosilicates
	(3) Inosilicates (4) Phyllosilicates
37.	In biogeochemical cycle, a chemical element or molecule moves through
	(1) Biosphere and lithosphere
	(2) Biosphere, lithosphere and atmosphere
	(3) Lithosphere and atmosphere
•	(4) Biosphere, lithosphere, atmosphere and hydrosphere
38.	Biogas produced by anaerobic bacterial activity is a mixture of
	(1) CH ₃ OH, CO ₂ , NH ₃ and H ₂ O
	(2) CO ₂ , SO ₂ , NO ₂ , CH ₄ and H ₂ O
	(3) H ₂ S, CO ₂ , CO, CH ₄ and LPG
	(4) CH ₄ , CO ₂ , NH ₃ , H ₂ S and H ₂ O
39.	Which of the following statements about the oxidative decarboxylation o
	pyruvate is correct?
1	(1) The oxidative decarboxylation of pyruvate forms acetyl-CoA which is
	fed into the citric acid cycle
	(2) The oxidative decarboxylation of pyruvate formed in aerobic glycolysis
	occurs in the cytosol
	(3) The oxidative decarboxylation of pyruvate is catalysed by the enzyme
	pyruvate decarboxylase
	(4) The oxidative decarboxylation of pyruvate is reversible since there is
	a large decrease of free energy in the reaction

Question	Questions
No.	DEL (E. 1
40.	Function of Release factor RF2(Prokaryotes)/eRF1 (Eukaryotes) during
	translation is to:
	(1) UAA/UGA recognition
	(2) Ribosome translocation
	(3) GDP-Exchanging
	(4) GTP-Binding
41.	The rate of variation of population (N) with time (t) represented by equation
	$dN/dt = \gamma N$, follows
	(1) J-shaped curve (2) S-shaped curve
	(3) Z-shaped curve (4) Parabolic curve
42.	The soil type which is good for agriculture is
	(1) Podozols (2) Latosols
	(3) Serpent Soil (4) Solonachak
43.	Restoration of genetic diversity of a population can be obtained by :
	(1) Sexual selection
	(a) Process reflect accurate
	(3) Genetic drift
	(4) Stabilising selection
44.	As per Indian Standards (BIS) for drinking water desirable limit for total
	$hardness$ as $CaCO_3$ is
	(1) $100 \mathrm{mg/l}$ (2) $200 \mathrm{mg/l}$
	(3) 300 mg/l (4) 400 mg/l

Question No.	Questions
45.	The smokestack plumes exhibit 'coning' behaviour when
	(1) Stable atmospheric conditions exist
	(2) Atmosphere is unstable
	(3) The height of the stack is below the inversion layer
•	(4) Inversion exists right from the ground surface above
46.	Among total dissolved matter in marine water, chlorine accounts for
	(1) 30% (2) 55%
9	(3) 12% (4) 6%
47.	Peroxyacetyl Nitrate (PAN) is formed by oxidation of
	(i) Hydrocarbons (ii) Isoprene
	(iii) Terpene (iv) Arsenic
	Choose the correct answer from the codes:
	(1) (i) and (iv)
	(2) (ii) and (iv)
,	(3) (iii) and (iv)
	(4) (i), (ii) and (iii)
48.	The evolution of genetic resistance to antibiotics among disease-carrying
·	bacteria is an example of
	(1) Stabilizing natural selection
	(2) Directional natural selection
•	(3) Diversifying natural selection
	(4) Convergent natural selection

Question No.	Questions			
49.	Beer's Law is applicable in case of:			
	(1) Heat transfer			
	(2) Convection studies			
	(3) Transmission of light			
	(4) Photochemical reaction			
50.	Anemometer is used to measure			
	(1) Atmospheric pressure (2) Wind speed			
	(3) Atmospheric temperature (4) Wind velocity			
51.	Most abundant fossil is:			
	(1) Coal (2) Natural gas			
	(3) Oil (4) Peat			
52.	Chaparral, Maquis, Encinous, Melleseab are important areas of			
	(1) Tropical deciduous woodland			
-	(2) Temperate evergreen woodland			
	(3) Tropical evergreen woodland			
	(4) Temperate deciduous woodland			
53.	Which of the following food chain is correct?			
	(1) Phytoplankton \rightarrow Zooplankton \rightarrow Turtle \rightarrow Crabs			
	(2) Phytoplankton \rightarrow Zooplankton \rightarrow Crab \rightarrow Turtle			
	(3) Turtle \rightarrow Crab \rightarrow Zooplankton \rightarrow Phytoplankton			
-	(4) Zooplankton \rightarrow Turtle \rightarrow Crab \rightarrow Phytoplankton			

Question No.	Questions				
54.	Two species cannot remain in same place according to				
	(1) Allen's law (2) Gause hypothesis				
	(3) Doll's rule (4) Weismann's theory				
55.	Identify the correct pair :				
	(1) Edaphic - Saline soil				
	(2) Ecotope-Transition between two ecosystems				
	(3) Heliophytes- Photophilic plants				
	(4) Ecotone-Particular type of soil				
56.	Freshwater ecosystems are nutritionally limited by				
	(1) Phosphorous and Iron				
	(2) Phosphorous and Carbon				
	(3) Iron and Nitrogen				
	(4) Nitrogen and Calcium				
57.	'Threshold of Security' refers to the population level at which				
	(1) The balance between parasite and host is disturbed as the host produces antibodies.				
	(2) Functional response of the predator is very high.				
	(3) Predators no longer find it profitable to hunt for the prey species.				
	(4) Parasites damage the host body but do not cause immediate mortality				

Question No.	Questions			
58.	Which of following statements is incorrect about the enzyme complex which synthesizes ATP during oxidative phosphorylation?			
	(1) Its activity is not affected by un-coupler			
	(2) It contains a protein channel			
•	(3) It is inhibited by oligomycin			
	(4) It binds to molecular oxygen			
59.	"Bermuda grass allergy" is a type of			
	(1) Contact allergy (2) Airborne allergy			
	(3) Hydroborne allergy (4) Soilborne allergy			
60.	Which of following blotting techinque is considered more convenient, when no restriction sites are needed to be studied?			
``	(1) Northern blotting (2) Dot blot			
	(3) Western blotting (4) Southern blotting			
61.	Pleistocene represents period of			
· ·	(1) Cold climate			
	(2) Warm climate			
	(3) Alteration of cold and warm climate with high proportion of cold period			
	(4) Alteration of cold and warm climate with very high proportion of warm period.			

Questio No.	Questions				
62.	Which of the following is a function of M cyclins (product of cdc 13 gene) during cell cycle?				
	(1) Activate Cdk1 for S phase (2) Activate Cdk1 for M phase				
	(3) Phosphorylation of Cdk (4) Converts M form of Cdk1 to S form				
63.	Which of the following monomer did not make up DNA?				
	(1) Deoxythymidylic acid				
	(2) Deoxyguanylic acid				
	(3) Deoxyuridylic acid				
s.	(4) Deoxycytidine acid				
64.	Bio-oil can be obtained from lignocellulose by				
	(1) Combustion (2) Fast pyrolysis				
	(3) Gasification (4) Transesterification				
65.	During DNA replication, OKazaki fragments are formed on :				
	(1) Unopened strands (2) Leading strand				
	(3) Unopened proteins (4) Lagging strand				
66.	The validity period of Environmental Clearance after Environmental Impa				
	Assessment is least for				
	(1) Mining projects				
,	(2) River valley projects				
	(3) Harbour projects				
- 1	(4) Area development projects				
	(4) Area development projects				

Question No.	Questions				
67.	Which statement is not correct for hazardous wastes?				
	(1) They contain one or more of 39 toxic compounds				
	(2) They catch fire easily				
	(3) They are nonreactive	and stable			
	(4) They are capable of corroding metal containers				
68.	68. Right to clean environment is guaranteed in Indian Constitut				
	(1) Article 14	(2) Article 19			
	(3) Article 21	(4) Article 25			
69.	National Ambient Air Quality Standards for major pollutants were by CPCB in				
	(1) 1994	(2) 1984			
	(3) 2004	(4) 1974			
70.	0. Public Liability Insurance Act came into existence in the year:				
	(1) 1986	(2) 1989			
* :	(3) 1991	(4) 1995			
71.	Which one of the following DNA markers can be used to distinguish between				
	a homozygote and heteroz	zygote?			
	(1) RAPD	(2) AFLP			
	(3) RFLP	(4) ISSR			

Questio No.					
72.	In Y-shaped energy flow model, one arm represents herbivore and the other				
	(1) Carnivore (2) Decomposer (3) Omnivore (4) Secondary consumer				
73.	Which of the following is not present in acid rain?				
	(1) Peroxyacetylnitrate (2) H ₂ CO ₃				
	(3) HNO ₃ (4) H ₂ SO ₄				
74.	Which one of the following is not true about characteristics of chi-square distribution?				
	(1) Chi-square curve value is always positively skewed				
	(2) Chi-square value decreases with the increase in degree of freedom				
	(3) The mean of distribution is the number of degree of freedom				
, 9	(4) Chi-square is a static hypothesis and not a parameter				
75.	The performance of a sound insulating material is expressed in terms of				
	(1) Vibration index (2) Sound reduction index				
٠.	(3) Noise level index (4) Sound coefficient				
76.	Which of the following sampling methods is based on probability?				
= 3 ;* - 1	(1) Convenience sampling				
	(2) Quota sampling				
	(3) Judgement sampling				
1	(4) Stratified sampling				
ID/ITR	S_FF_2022 (Environmental Science) C. 1				

Question No.	Questions			
77.	Which one of the following is not a non-parametric test?			
	(1) t-test (2) Sign test			
	(3) Chi-square test (4) Run test			
78.	In geological studies, a dome shaped intrusion is called as:			
	(1) Volcanic neck (2) Laccolith			
	(3) Nuee ardente (4) Caldera			
79.	The Activated Sludge Process is a wastewater treatment process.			
	(1) Chemical (2) Biological			
	(3) Physical (4) Biochemical			
80.	The number of organisms of same species per unit area is			
	(1) Dispersion (2) Competition			
	(3) Density (4) Mortality			
81.	Dunes are the most spectacular land forms of ecosystem.			
10	(1) Marine (2) Desert			
	(3) Grassland (4) Forest			
82.	Highest level of species richness is observed in			
	(1) Tropical rain forest			
	(2) Temperate grass lands			
	(3) Coniferous forests			
	(4) Alpine pastures			

Questio No.	Questions
83.	The technique of extracting metal from ore bearing rock is called as:
· ·	(1) Bio extraction
	(2) Microbial extraction
.5-	(3) Bio leaching
	(4) Bio filtration
84.	A compound that is foreign in nature to biological system is
	(1) Halogenated compound
	(2) Aromatic compound
,•	(3) Xenobiotic compound
	(4) Organic compound
85.	Which of the following is not true about Hatch and Slack cycle?
	(1) CO ₂ acceptor is PEP
	(2) Oxaloacetate is first stable product
	(3) CO ₂ compensation point is very high
	(4) Thirty ATP are required for synthesis of one glucose molecule

Question No.	Questions				
86.	Which of the following statements about the generation of ATP in the electron transport chains is correct?				
, ,	(1) The F1 subunit of the ATP synthase contains the motor which is driven to rotate by the proton flow				
12 2	(2) The F0 subunit of the ATP synthase binds ADP and Pi tightly before ATP synthesis occurs				
	(3) The F0 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP				
	(4) The F1 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP				
87.	Chlorella species are widely used in the removal of:				
	 (1) Organic waste (2) Hydrocarbons (3) Heavy metals (4) All of these 				
88.	Cd, Pb and Hg are nephrotoxic metals as they cause harm to organ.				
	(1) Liver (2) Kideny (3) Pancreas (4) Lungs				
89.	Flood which is caused due to heavy rain or dam break within 6-12 hours of beginning of rainfall is				
	(1) River Floods (2) Flash Floods				
	(3) Lag Time Floods (4) Coastal Floods				

Questio No.					
90.	A non directed physico chemical interaction between heavy metal ions and microbial surface are called:				
	(1) Biotransformation (2) Bioconversion				
	(3) Biomining (4) Biosorption				
91.	After 30 PCR cycles, theoretical number of DNA copies produced will b				
	near to:				
	(1) 1073 (2) 107374				
	(3) 10737418 (4) 1073741824				
92.	Tendency of pollutants to become concentrated in the trophic level is:				
	(1) Bioremediation (2) Biomagnification				
	(3) Bio piracy (4) Biorhythm				
93.	The inhibitory effect of oxygen on the rate of photosynthesis is known as				
- 450	(1) Warburg effect (2) Emerson effect				
	(3) Pasteur effect (4) Blackman effect				
94.	The role of chlorine in water treatment is:				
	(1) To remove hardness (2) To remove ions				
	(3) To remove bacteria (4) To act as coagulant agent				
95.	The World Wetland Day is celebrated on				
	(1) 22nd March (2) 5th June				
	(3) 16th September (4) 2nd February				

uestion No.	Questions				
96.	Ergonomic hazards are caused by				
	(1) Machinery				
	(2) Poorly designed tools				
	(3) Chemicals				
	(4) Electricity				
97.	Which of the following is a key intermediate compound linking glycolysi				
	to Kerb's cycle?				
	(1) Oxaloacetic acid				
,	(2) Acetyl Co A				
× .	(3) Succinyl CoA				
	(4) Pyruvic acid				
98.	Species that occur in different geographical regions separated by species barriers are: (1) Allopatric species (2) Endemic species (3) Sibling species (4) Sympatric species				
99.	The National Disaster Management Authority is headed by				
	(1) Prime Minister of India				
÷	(2) President of India				
	(3) Environmental Minister				
	(4) Chief Ministers of states				
100.	The carrying capacity of a population is determined by its:				
	(1) Population growth (2) Natality				
	(3) Limiting resources (4) Mortality				

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(Ph.D/URS-EE - JAN. 2022)

Code B

ENVIRONMENTAL SCIENCE

	101	26
Sr.	No.	

Time: 1¼ Hours	Total Quest	ions : 100	Max. Marks: 100		
Roll No.	(in figure)		(in words)		
Name:		_ Father's l	Name:		
Mother's Name:		_ Date of Ex	te of Examination:		
(Signature of the cano	lidate)	(£	Signature of the Invigilator)		
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uestion No.		Questions	7
1.	Which one of the follo	wing DNA markers can be used to deterozygote?	istinguish between
	(1) RAPD (3) RFLP	(2) AFLP (4) ISSR	
2.	marin a star with the me is made as the	flow model, one arm represents	
	(1) Carnivore (3) Omnivore	(2) Decomposer (4) Secondary consum	ner
3.	(1) Peroxyacetylni (3) HNO ₃	selico (4) H ₂ SO ₄ es es	olean ni
4.	distribution? (1) Chi-square cui (2) Chi-square va	llowing is not true about character rve value is always positively skew lue decreases with the increase in	ed degree of freedom
	(3) The mean of d (4) Chi-square is	listribution is the number of degree a static hypothesis and not a para	ee of freedom meter
5.	The performance of (1) Vibration inde (3) Noise level in	Coion	index

Question No.	Questions
6.	Which of the following sampling methods is based on probability?
	(1) Convenience sampling(2) Quota sampling(3) Judgement sampling
12.5	(4) Stratified sampling
7.	Which one of the following is not a non-parametric test? (1) t-test (2) Sign test (3) Chi-square test (4) Run test
8.	In geological studies, a dome shaped intrusion is called as: (1) Volcanic neck (2) Laccolith (3) Nuee ardente (4) Caldera
9.	The Activated Sludge Process is a wastewater treatment process
	(1) Chemical (2) Biological
	(3) Physical (4) Biochemical
10.	The number of organisms of same species per unit area is
	(1) Dispersion (2) Competition
	(3) Density (4) Mortality
11.	Most abundant fossil is:
11.	Most abundant fossil is: (1) Coal (2) Natural gas (3) Oil (4) Peat

Question No.	Questions
12.	Chaparral, Maquis, Encinous, Melleseab are important areas of
	(1) Tropical deciduous woodland
X.	(2) Temperate evergreen woodland
	(3) Tropical evergreen woodland
	(4) Temperate deciduous woodland
13.	Which of the following food chain is correct?
Park and A	(1) Phytoplankton \rightarrow Zooplankton \rightarrow Turtle \rightarrow Crabs
	(2) Phytoplankton \rightarrow Zooplankton \rightarrow Crab \rightarrow Turtle
	(3) Turtle \rightarrow Crab \rightarrow Zooplankton \rightarrow Phytoplankton
	(4) Zooplankton \rightarrow Turtle \rightarrow Crab \rightarrow Phytoplankton
14.	Two species cannot remain in same place according to
	(1) Allen's law (2) Gause hypothesis
	(3) Doll's rule (4) Weismann's theory
15.	Identify the correct pair:
	(1) Edaphic - Saline soil
ide	(2) Ecotope-Transition between two ecosystems
	(3) Heliophytes-Photophilic plants
4	(4) Ecotone-Particular type of soil
16.	Freshwater ecosystems are nutritionally limited by
	(1) Phosphorous and Iron
	(2) Phosphorous and Carbon
	(3) Iron and Nitrogen
	(4) Nitrogen and Calcium

Question No.	Questions
17.	'Threshold of Security' refers to the population level at which
	(1) The balance between parasite and host is disturbed as produces antibodies.
To the second	The prey species.
	(3) Predators no longer find it profitable to all(4) Parasites damage the host body but do not cause immediate mortality.
18.	Which of following statements is incorrect about the enzyme complex which
10.	synthesizes ATP during oxidative phosphorylation?
n out to the	(1) Its activity is not affected by un-coupler
	(2) It contains a protein channel
**	(3) It is inhibited by oligomycin
- 74	(4) It binds to molecular oxygen
19.	"Bermuda grass allergy" is a type of
	(1) Contact allergy (2) Airborne allergy
	(3) Hydroborne allergy (4) Soilborne allergy
20.	Which of following blotting techinque is considered more convenient, who no restriction sites are needed to be studied?
	(1) Northern blotting (2) Dot blot
	(3) Western blotting (4) Southern blotting

Question No.	Questions
21.	Brown forest soil is also known as
	(1) Mollisols (2) Altisols
	(3) Spodosols (4) Entisols
22.	Establishment of a species in a new area is referred to as
	(1) Ecesis (2) Aggregation
	(3) Stabilization (4) Migration
23.	The Zooplankton of continental shelf is generally the same as in
·	(1) Estuary region (2) Pelagic region
	(3) Neritic region (4) Benthic region
24.	'Mesothelioma' is caused by toxicity of
Talestery is a	(1) Mercury (2) Lead
	(3) Arsenic (4) Carbon monoxide
25.	A volcanic eruption will be violent if there is
	(1) High silica and high volatiles
1 (2/ 2 50)	(2) High silica and low volatiles
· · · · · · · · · · · · · · · · · · ·	(3) Low silica and low volatiles
	(4) Low silica and high volatiles
90	Clay minerals are
26.	(2) Sprogilicates
	(4) Phyllogilicates
	(3) Inosilicates (4) Phyllosilicates

Question No.	Questions
27.	In biogeochemical cycle, a chemical element or molecule moves through
	(1) Biosphere and lithosphere
旗柱 .	(2) Biosphere, lithosphere and atmosphere
	(3) Lithosphere and atmosphere
	(4) Biosphere, lithosphere, atmosphere and hydrosphere
28.	Biogas produced by anaerobic bacterial activity is a mixture of
	(1) CH ₃ OH, CO ₂ , NH ₃ and H ₂ O
le	(2) CO ₂ , SO ₂ , NO ₂ , CH ₄ and H ₂ O
	(3) H ₂ S, CO ₂ , CO, CH ₄ and LPG
	(4) CH ₄ , CO ₂ , NH ₃ , H ₂ S and H ₂ O
29.	Which of the following statements about the oxidative decarboxylation of
	pyruvate is correct?
	(1) The oxidative decarboxylation of pyruvate forms acetyl-CoA which i
	fed into the citric acid cycle
Signi	(2) The oxidative decarboxylation of pyruvate formed in aerobic glycolysi occurs in the cytosol
	(3) The oxidative decarboxylation of pyruvate is catalysed by the enzym pyruvate decarboxylase
	(4) The oxidative decarboxylation of pyruvate is reversible since there i
	a large decrease of free energy in the reaction
30.	Function of Release factor RF2(Prokaryotes)/eRF1 (Eukaryotes) during
	translation is to:
	(1) UAA/UGA recognition (2) Ribosome translocation
Fr.	(3) GDP-Exchanging (4) GTP-Binding

(Environmental Science) Code-B

Question No.	
31.	Which of the following is not a method for ex-situ conservation of biodiversity? (1) In vitro repositories (2) Cryobanks (3) Botanical gardens (4) National parks
32.	The Protection of Plant varieties and Farmers Rights Act was passed by the Indian Parliament in (1) 1991 (2) 2001 (3) 2014 (4) 2002
33.	Which of the following BOD level waste water is permitted to be released inlands by industries under Water (Prevention and Control of Pollution Act, 1974? (1) 80 mg/l (2) 30 mg/l (3) 150 mg/l (4) 100 mg/l
34.	Which of the following is a scorable marker? (1) nptII (2) hptIV (3) bar (4) gus
35.	National Land Reform Policy stresses on (1) Tenancy reforms

Questions
Which is not true about the idea carrier matrix for enzyme immobilization
(1) Low cost
(2) Regenerability
(3) Stability
(4) Reduction in enzyme specificity
In which years, the Ramsar Convention on Wetlands was held and com
into force?
(1) 1965, 1969 (2) 1961, 1965
(3) 1971, 1975 (4) 1981, 1985
The Stockholm Convention is a global treaty to protect humans from
(1) Toxic gases
(2) Hospital acquired infections
(3) Persistent organic pollutants
(4) Carbon monoxide
Which of the following is not a restriction endonuclease?
(1) DNA ligase (2) Bam H1
(3) Eco R1 (4) Hind III
Which of the following is the right match concerning the toxic metal an associated adverse impact?
(1) Zn-Brain tissue damage (2) Ni-Keratosis
(3) Ar-Renal poisoning (4) Hg-Pulmonary disease CS-EE-2022 (Environmental Science) Code-B

Question No.	Questions
41.	After 30 PCR cycles, theoretical number of DNA copies produced will be near to: (1) 1073 (2) 107374 (3) 10737418 (4) 1073741824
40	Tendency of pollutants to become concentrated in the trophic level is:
42.	(1) Bioremediation (2) Biomagnification (3) Bio piracy (4) Biorhythm
43.	The inhibitory effect of oxygen on the rate of photosynthesis is known as (1) Warburg effect (2) Emerson effect (3) Pasteur effect (4) Blackman effect
44.	The role of chlorine in water treatment is: (1) To remove hardness (2) To remove ions (3) To remove bacteria (4) To act as coagulant agent
45.	The World Wetland Day is celebrated on (1) 22nd March (2) 5th June (3) 16th September (4) 2nd February
46.	Ergonomic hazards are caused by
	(3) Chemicals(4) Electricity

Question No.	Questions Questions
47.	Which of the following is a key intermediate compound linking glycolysis
191 - 4	to Kerb's cycle?
	(1) Oxaloacetic acid
	(2) Acetyl Co A
8	(3) Succinyl CoA
	(4) Pyruvic acid
48.	Species that occur in different geographical regions separated by special
•.	barriers are:
and the same	(1) Allopatric species (2) Endemic species
	(3) Sibling species (4) Sympatric species
49.	The National Disaster Management Authority is headed by
	(1) Prime Minister of India
	(2) President of India
er valu	(3) Environmental Minister
	(4) Chief Ministers of states
50.	The carrying capacity of a population is determined by its:
•.	(1) Population growth (2) Natality
	(3) Limiting resources (4) Mortality
51.	Pleistocene represents period of
	(1) Cold climate
	(2) Warm climate
. '	(3) Alteration of cold and warm climate with high proportion of cold peri
	(4) Alteration of cold and warm climate with very high proportion of war
	period. RS-EE-2022 (Environmental Science) Code-B

Question No.	Questions
52.	Which of the following is a function of M cyclins (product of cdc 13 gene) during cell cycle? (1) Activate Cdk1 for S phase (2) Activate Cdk1 for M phase (3) Phosphorylation of Cdk (4) Converts M form of Cdk1 to S form
53.	Which of the following monomer did not make up DNA? (1) Deoxythymidylic acid (2) Deoxyguanylic acid (3) Deoxyuridylic acid (4) Deoxycytidine acid
54.	Bio-oil can be obtained from lignocellulose by (1) Combustion (2) Fast pyrolysis (3) Gasification (4) Transesterification
55.	During DNA replication, OKazaki fragments are formed on: (1) Unopened strands (2) Leading strand (3) Unopened proteins (4) Lagging strand
56.	The validity period of Environmental Clearance after Environmental Impact Assessment is least for (1) Mining projects (2) River valley projects (3) Harbour projects (4) Area development projects

Question No.	Questions
57.	Which statement is not correct for hazardous wastes?
	(1) They contain one or more of 39 toxic compounds
	(2) They catch fire easily
	(3) They are nonreactive and stable
	(4) They are capable of corroding metal containers
58.	Right to clean environment is guaranteed in Indian Constitution by
•	(1) Article 14 (2) Article 19
•	(3) Article 21 (4) Article 25
59.	National Ambient Air Quality Standards for major pollutants were notified by CPCB in (1) 1994 (2) 1984
	(3) 2004 (4) 1974
60.	Public Liability Insurance Act came into existence in the year:
	 (1) 1986 (2) 1989 (3) 1991 (4) 1995
61.	Dunes are the most spectacular land forms of
	(1) Marine (2) Desert
	(3) Grassland (4) Forest

Question No.	Questions
62.	Highest level of species richness is observed in
	(1) Tropical rain forest
	(2) Temperate grass lands
	(3) Coniferous forests
	(4) Alpine pastures
63.	The technique of extracting metal from ore bearing rock is called
	as:
	(1) Bio extraction
	(2) Microbial extraction
	(3) Bio leaching
	(4) Bio filtration
64.	A compound that is foreign in nature to biological system is
	(1) Halogenated compound
	(2) Aromatic compound
	(3) Xenobiotic compound
M.	(4) Organic compound
65.	Which of the following is not true about Hatch and Slack cycle?
	(1) CO ₂ acceptor is PEP
	(2) Oxaloacetate is first stable product
	(3) CO, compensation point is very high
	(4) Thirty ATP are required for synthesis of one glucose molecule

Question No.	quoses		
66.	Which of the following statements about the generation of ATP in the electron transport chains is correct?		
	(1) The F1 subunit of the ATP synthase contains the motor which is driven to rotate by the proton flow		
A.	(2) The F0 subunit of the ATP synthase binds ADP and Pi tightly before ATP synthesis occurs		
(1) (1)	(3) The F0 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP		
	(4) The F1 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP		
67. Chlorella species are widely used in the removal of:			
	(1) Organic waste (2) Hydrocarbons (3) Heavy metals (4) All of these		
68.	Cd, Pb and Hg are nephrotoxic metals as they cause harm to organ. (1) Liver (2) Kideny		
69.	(3) Pancreas (4) Lungs Flood which is caused due to heavy rain or dam break within 6-12 hours of the control		
	beginning of rainfall is (1) River Floods (2) Flash Floods (3) Lag Time Floods (4) Count 177		
DIID	(3) Lag Time Floods (4) Coastal Floods [RS-EF-2022 (Environmental Science) G		

Question Mo.	Questions
70.	A non directed physico chemical interaction between heavy metal ions and microbial surface are called:
3.	(1) Biotransformation (2) Bioconversion
N.	(3) Biomining (4) Biosorption
71.	The rate of variation of population (N) with time (t) represented by equation $dN/dt = \gamma N$, follows
A	(1) J-shaped curve (2) S-shaped curve
	(3) Z-shaped curve (4) Parabolic curve
72.	The soil type which is good for agriculture is
Ŷ.	(1) Podozols (2) Latosols
	(3) Serpent Soil (4) Solonachak
73.	Restoration of genetic diversity of a population can be obtained by:
	(1) Sexual selection (2) Mutation
	(3) Genetic drift
	(4) Stabilising selection
74.	As per Indian Standards (BIS) for drinking water desirable limit for total
1.	hardness as CaCO ₃ is
	(1) 100 mg/l (2) 200 mg/l
	(3) 300 mg/l (4) 400 mg/l

Question No.	Questions
75.	The smokestack plumes exhibit 'coning' behaviour when
	(1) Stable atmospheric conditions exist
	(2) Atmosphere is unstable
	(3) The height of the stack is below the inversion layer
Later Company	(4) Inversion exists right from the ground surface above
	(4) Thersion exists right from the ground barrage and
76.	Among total dissolved matter in marine water, chlorine accounts for
	(1) 30% (2) 55%
,	(3) 12% (4) 6%
77.	Peroxyacetyl Nitrate (PAN) is formed by oxidation of
	(i) Hydrocarbons (ii) Isoprene
	(iii) Terpene (iv) Arsenic
	Choose the correct answer from the codes:
	(1) (i) and (iv)
	(2) (ii) and (iv)
	(3) (iii) and (iv)
	(4) (i), (ii) and (iii)
78.	The evolution of genetic resistance to antibiotics among disease-carryin
	bacteria is an example of
	(1) Stabilizing natural selection
	(2) Directional natural selection
9	(3) Diversifying natural selection
ber	(4) Convergent natural selection

Question No.	Questions
79.	Beer's Law is applicable in case of:
	(1) Heat transfer
	(2) Convection studies
	(3) Transmission of light
	(4) Photochemical reaction
80.	Anemometer is used to measure
	(1) Atmospheric pressure (2) Wind speed
	(3) Atmospheric temperature (4) Wind velocity
01	Amount of 8-hydroxyquinoline (M.W. 145.16) required for preparing 1000
81.	ml of 5 ppm solution is:
	(1) 1.45 mg
	(3) 7.25 mg (4) 14.5 mg
82.	Long term stability of a community depends on:
	(1) Biodiversity (2) Resource partitioning
	(3) Biotic component (4) Succession
83.	The external appearance of the community which may be described on the
	basis of dominant plants, density height, colour etc. of plants is know
	as:
	(1) Periodicity (2) Phenology
	(3) Physiognomy (4) Aspection
	JRS-EE-2022 (Environmental Science) Code-B

Question No.	Questions	
84.	 IUCN headquarters is at: (1) Paris, France (2) Vienna, Austria (3) Morges, Switzerland (4) New York, USA 	
85.	As compared to CO ₂ , methane has global warming potential of: (1) 5-10 times more (2) 20-25 times more (3) 40-45 times more (4) 60-65 times more	
86.	Laterite soil contains more of (1) Manganese and Silicate (2) Magnesium and Boron (3) Iron and Aluminium (4) Potassium and Lead	
87.	Universally accepted method for isolating semivolatile organic compounds from their matrices is (1) Solvent extraction (2) Double infiltration (3) Sedimentation technique (4) Permeation	
88.	The kind of association where both the population are benefitted, but not essential for the survival of either population is referred to as: (1) Competition (2) Exploitation (3) Amensalism (4) Protocooperation	

Question No.	Questions Questions		
89,	Species diversity increases as one proceeds from		
	(1) Higher to lower altitude and lower to higher latitude		
	(2) Lower to higher altitude and higher to lower latitude		
2.17	(3) Lower to higher altitude and lower to higher latitude		
	(4) Higher to lower altitude and higher to lower latitude		
90.	Which of the following ecosystems has the lowest net primary production		
	per square metere?		
/w/48 1 1 1	(1) A grassland		
34,	(2) An open ocean		
	(3) A Coral reef		
	(4) A tropical rain forest		
91.	Which of the foillowing is not present in soluble state in alkaline soils?		
	(1) Potassium (2) Calcium		
The second second	(3) Nitrates (4) Phosphorous		
92.	Which of the following artificial chromosome has largest carrying capacity?		
	(1) BAC (2) YAC		
	(3) PAC (4) (6) MAC		

Question No.	Questions	
93.	 Which is the correct sequence for impact assessment process in EIA? (1) Prediction of impacts → Identification of impacts → Description of environment → Evaluation of impacts → Identification of mitigation needs. (2) Identification of impacts → Prediction of impacts → Evaluation of impacts → Identification of mitigation needs. (3) Identification of impacts → Description of environment → Prediction of impacts → Evaluation of impacts → Identification of mitigation needs. (4) Description of environment → Identification of impacts → Prediction of impacts → Evaluation of impacts → Identification of mitigation needs. 	
94.	The most commonly used method for desalinization of water is: (1) Distillation (2) Reverse osmosis (3) Ion-exchange (4) Electrodialysis.	
95.	Which of the following pertains to "high-waste approach" in dealing with the solid and hazardous wastes? (1) Composting (2) Recycling (3) Burying and burning (4) Reusing	
96.	In most of the studies, a large sample size is anticipated to (1) Maximize the sampling error (2) Get a low level of precision (3) Maximize the standard deviation (4) Get a high level of precision.	

Question No.	Questions
97.	The geometric mean of 4, 8 and 16 is
	(1) 9.1 (2) 4.6
<u>.</u>	(3) 8.0 (4) 10.2
98.	Copper (Cu) is classified according to its geochemical affinity as:
	(1) Chalcophile element
	(2) Siderophile element
Y	(3) Atmophile element
\$ ·	(4) Lithophile element
99.	Which of the following is used in manufacturing flexible plastic bags and sheets? (1) Polyethylene terephthalate
	(2) Polystyrene
••	
	(2) Polystyrene
100.	(2) Polystyrene (3) TEFLON (4) Low density polyethylene
100.	 (2) Polystyrene (3) TEFLON (4) Low density polyethylene Which one of the following is a non-formal environment education and
100.	 (2) Polystyrene (3) TEFLON (4) Low density polyethylene Which one of the following is a non-formal environment education and awareness programme?
100.	 (2) Polystyrene (3) TEFLON (4) Low density polyethylene Which one of the following is a non-formal environment education and awareness programme? (1) Environmental appreciation courses

SET-"Z"

(DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

(Ph.D/URS-EE - JAN. 2022)

Code

ENVIRONMENTAL SCIENCE

	10127	
Sr.	No	_

Time: 1¼ Hours	Total Questions (in figure)	/·
Roll No	F	Sather's Name:
Mother's Name:	D:	Date of Examination:
(Signature of the candid	ate)	(Signature of the Invigilator)

CANDIDATES MUST READ THE FOLLOWING INFORMATION/ INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

All questions are compulsory.

The candidates must return the Question book-let as well as OMR answer-sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / mis-behaviour will be registered $^{\mathbb{D}}_{r}$ against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.

Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by

the candidate.

Question Booklet along with answer key of all the A,B,C and D code will be got uploaded on the university website after the conduct of Entrance Examination. In case there is any discrepancy in the Question Booklet/Answer Key, the same may be brought to the notice of the Controller of Examinations in writing/through E-Mail within 24 hours of uploading the same on the University Website. Thereafter, no complaint in any case, will be considered.

The candidate MUST NOT do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question book-let itself. Answers

MUST NOT be ticked in the Question book-let.

There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.

Use only Black or Blue BALL POINT PEN of good quality in the OMR Answer-

Sheet.

BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.

Question No.	Questions	
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	(3) Ion-exchange (4) Electrodialysis.	

Question No.	Questions
25.	Which of the following pertains to "high-waste approach" in dealing with
	the solid and hazardous wastes?
	(1) Composting (2) Recycling
	(3) Burying and burning (4) Reusing
26.	In most of the studies, a large sample size is anticipated to
	(1) Maximize the sampling error
- 1 - 1 - 1	(2) Get a low level of precision
en jegle	(3) Maximize the standard deviation
	(4) Get a high level of precision.
27.	The geometric mean of 4, 8 and 16 is
	(1) 9.1 (2) 4.6
	(3) 8.0 m the finite action a lange s(4) 10.2 for the sum of the second
28.	Copper (Cu) is classified according to its geochemical affinity as:
	(1) Chalcophile element
	(2) Siderophile element
	(3) Atmophile element
	(4) Lithophile element
29.	Which of the following is used in manufacturing flexible plastic bags a
	sheets?
	(1) Polyethylene terephthalate
	(2) Polystyrene
	(3) TEFLON
	(4) Low density polyethylene

Question No.	Questions
30.	Which one of the following is a non-formal environment education and awareness programme? (1) Environmental appreciation courses (2) Environmental Education in school system (3) National Environment Awareness Campaign
	(4) Environmental Management Business Studies
32.] (((3)	Dunes are the most spectacular land forms ofecosystem. (1) Marine
33. T as (1) (2) (3) (4)	Bio extraction Microbial extraction

Questio No.	Questions
34.	A compound that is foreign in nature to biological system is
	(1) Halogenated compound (2) Aromatic compound
	(3) Xenobiotic compound (4) Organic compound
35.	Which of the following is not true about Hatch and Slack cycle?
	(1) CO ₂ acceptor is PEP
	(2) Oxaloacetate is first stable product
•	(3) CO ₂ compensation point is very high
	(4) Thirty ATP are required for synthesis of one glucose molecule
36.	Which of the following statements about the generation of ATP in the electron transport chains is correct?
	(1) The F1 subunit of the ATP synthase contains the motor which is drive to rotate by the proton flow
	(2) The F0 subunit of the ATP synthase binds ADP and Pi tightly befor ATP synthesis occurs
	 (2) The F0 subunit of the ATP synthase binds ADP and Pi tightly befor ATP synthesis occurs (3) The F0 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP

Question No.	Questions
37.	Chlorella species are widely used in the removal of:
	(1) Organic waste (2) Hydrocarbons
	(3) Heavy metals (4) All of these
38.	Cd, Pb and Hg are nephrotoxic metals as they cause harm to organ.
	(1) Liver (2) Kideny
	(3) Pancreas (4) Lungs
39.	Flood which is caused due to heavy rain or dam break within 6-12 hours o beginning of rainfall is
	(1) River Floods (2) Flash Floods
***********************************	(3) Lag Time Floods (4) Coastal Floods
1 n - 1 x	A non directed physico chemical interaction between heavy metal ions and microbial surface are called :
	(1) Biotransformation (2) Bioconversion
	(3) Biomining (4) Biosorption
41.	Pleistocene represents period of
	1) Cold climate
	2) Warm climate
	3) Alteration of cold and warm climate with high proportion of cold period
(4	 Alteration of cold and warm climate with very high proportion of warm period.

Question No.	Questions
42.	Which of the following is a function of M cyclins (product of cdc 13 gene)
	during cell cycle ?
	(1) Activate Cdk1 for S phase (2) Activate Cdk1 for M phase
•, •	(3) Phosphorylation of Cdk (4) Converts M form of Cdk1 to S form
43.	Which of the following monomer did not make up DNA?
	(1) Deoxythymidylic acid
	(2) Deoxyguanylic acid
7 	(3) Deoxyuridylic acid
	(4) Deoxycytidine acid
44.	Bio-oil can be obtained from lignocellulose by
	(1) Combustion (2) Fast pyrolysis
	(3) Gasification (4) Transesterification
45.	During DNA replication, OKazaki fragments are formed on :
	(1) Unopened strands (2) Leading strand
	(3) Unopened proteins (4) Lagging strand
46.	The validity period of Environmental Clearance after Environmental Impac
	Assessment is least for
	(1) Mining projects
Q.	2) River valley projects
. (3) Harbour projects
- (4) Area development projects

Question No.	Questions
47.	Which statement is not correct for hazardous wastes?
	(1) They contain one or more of 39 toxic compounds
	(2) They catch fire easily
	(3) They are nonreactive and stable
• • • • • • • • • • • • • • • • • • •	(4) They are capable of corroding metal containers
48.	Right to clean environment is guaranteed in Indian Constitution by
	(1) Article 14 (2) Article 19
	(3) Article 21 (4) Article 25
49.	National Ambient Air Quality Standards for major pollutants were notified
	by CPCB in
	(1) 1994 (2) 1984
	(3) 2004 (4) 1974
50.	Public Liability Insurance Act came into existence in the year:
	(1) 1986 (2) 1989
	(3) 1991 (4) 1995
51.	Brown forest soil is also known as
	(1) Mollisols (2) Altisols
	(3) Spodosols (4) Entisols

Question No.	Questions	
52.	Establishment of a species in a new area is referred to as	
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	(3) Stabilization (4) Migration	
53.	The Zooplankton of continental shelf is generally the same as i	n
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	(3) Neritic region (4) Benthic region	
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	(1) Mercury (2) Lead	
	(3) Arsenic (4) Carbon monoxide	• 1
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	(1) High silica and high volatiles	
	(2) High silica and low volatiles	
	(3) Low silica and low volatiles	.•
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56.	Clay minerals are	
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,	(3) Inosilicates (4) Phyllosilicates	
57.	In biogeochemical cycle, a chemical element or molecule move	es through
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* * y *	(2) Biosphere, lithosphere and atmosphere	
	(3) Lithosphere and atmosphere	
	(4) Biosphere, lithosphere, atmosphere and hydrosphere	

Question No.	Questions
58.	Biogas produced by anaerobic bacterial activity is a mixture of
	(1) CH ₃ OH, CO ₂ , NH ₃ and H ₂ O
	(2) CO ₂ , SO ₂ , NO ₂ , CH ₄ and H ₂ O
	(3) H ₂ S, CO ₂ , CO, CH ₄ and LPG
	(4) CH ₄ , CO ₂ , NH ₃ , H ₂ S and H ₂ O
59.	Which of the following statements about the oxidative decarboxylation of pyruvate is correct?
	(1) The oxidative decarboxylation of pyruvate forms acetyl-CoA which i fed into the citric acid cycle
	(2) The oxidative decarboxylation of pyruvate formed in aerobic glycolysic occurs in the cytosol
	(3) The oxidative decarboxylation of pyruvate is catalysed by the enzym pyruvate decarboxylase
	4) The oxidative decarboxylation of pyruvate is reversible since there is a large decrease of free energy in the reaction
7.3 (8)	Function of Release factor RF2(Prokaryotes)/eRF1 (Eukaryotes) durin ranslation is to:
	1) UAA/UGA recognition
	2) Ribosome translocation
	B) GDP-Exchanging
(4	() GTP-Binding

Questic No.	
61.	Which one of the following DNA markers can be used to distinguish between a homozygote and heterozygote? (1) RAPD (2) AFLP (3) RFLP (4) ISSR
62.	In Y-shaped energy flow model, one arm represents herbivore and the other (1) Carnivore (2) Decomposer (3) Omnivore (4) Secondary consumer
63.	Which of the following is not present in acid rain? (1) Peroxyacetylnitrate (2) H ₂ CO ₃ (3) HNO ₃ (4) H ₂ SO ₄
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65.	The performance of a sound insulating material is expressed in terms of (1) Vibration index (2) Sound reduction index (3) Noise level index (4) Sound coefficient

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	(1) Chemical (2) Biological
	(3) Physical (4) Biochemical
70.	The number of organisms of same species per unit area is
	(1) Dispersion (2) Competition
	(3) Density (4) Mortality
71.	After 30 PCR cycles, theoretical number of DNA copies produced will be
	near to:
. [(1) 1073 (2) 107374
	(3) 10737418 (4) 1073741824

Question No.	Questions				
72.	Tendency of pollutants to become concentrated in the trophic level is:				
	(1) Bioremediation (2) Biomagnification				
,	(3) Bio piracy (4) Biorhythm				
73.	The inhibitory effect of oxygen on the rate of photosynthesis is known as				
	(1) Warburg effect (2) Emerson effect				
- নিজ্য de s	(3) Pasteur effect (4) Blackman effect				
74.	The role of chlorine in water treatment is:				
	(1) To remove hardness (2) To remove ions				
	(3) To remove bacteria (4) To act as coagulant agent				
75.	The World Wetland Day is celebrated on				
	(1) 22nd March (2) 5th June				
	(3) 16th September (4) 2nd February				
76.	Ergonomic hazards are caused by				
	(1) Machinery				
•	(2) Poorly designed tools				
	(3) Chemicals				
7	(4) Electricity				
77.	Which of the following is a key intermediate compound linking glycoly				
	to Kerb's cycle ?				
	(1) Oxaloacetic acid				
	(2) Acetyl Co A				
	(3) Succinyl CoA				
	(4) Pyruvic acid				

Question No.	Questions			
78.	Species that occur in different geographical regions separated by special barriers are:			
	(1) Allopatric species (2) Endemic species			
	(3) Sibling species (4) Sympatric species			
79.	The National Disaster Management Authority is headed by			
	(1) Prime Minister of India			
	(2) President of India			
1	(3) Environmental Minister			
	(4) Chief Ministers of states			
80.	The carrying capacity of a population is determined by its:			
	(1) Population growth (2) Natality			
	(3) Limiting resources (4) Mortality			
81.	Which of the following is not a method for ex-situ conservation of			
.	biodiversity?			
. !	(1) In vitro repositories (2) Cryobanks			
	(3) Botanical gardens (4) National parks			
82.	The Protection of Plant varieties and Farmers Rights Act was passed by			
1	the Indian Parliament in			
	1) 1991 (2) 2001			
	3) 2014 (4) 2002			

Question No.	Questions		
83.	Which of the following BOD level waste water is permitted to be released inlands by industries under Water (Prevention and Control of Pollution) Act, 1974?		
	(1) 80 mg/l (2) 30 mg/l (3) 150 mg/l (4) 100 mg/l		
84.	Which of the following is a scorable marker?		
	(1) nptII (2) hptIV		
	(3) bar (4) gus		
85.	National Land Reform Policy stresses on		
in the second second	(1) Tenancy reforms		
'n	(2) Natural regeneration		
1, 16°	(3) Restoration of ecological balance		
	(4) Watershed approach		
86.	Which is not true about the idea carrier matrix for enzyme immobilization		
47	(1) Low cost		
	(2) Regenerability		
	(3) Stability		
· ·	(4) Reduction in enzyme specificity		
87.	In which years, the Ramsar Convention on Wetlands was held and com		
	into force?		
	(1) 1965, 1969 (2) 1961, 1965		
	(3) 1971, 1975 (4) 1981, 1985		

Questic No.	Questions			
88.	The Stockholm Convention is a global treaty to protect humans from			
٠.	(1) Toxic gases			
	(2) Hospital acquired infections			
	(3) Persistent organic pollutants			
	(4) Carbon monoxide			
89.	Which of the following is not a restriction endonuclease?			
	(1) DNA ligase (2) Bam H1			
	(3) Eco R1 (4) Hind III			
90.	Which of the following is the right match concerning the toxic metal and associated adverse impact? (1) Zn-Brain tissue damage (2) Ni-Keratosis (3) Ar-Renal poisoning (4) Hg-Pulmonary disease			
91.	Most abundant fossil is:			
	(1) Coal (2) Natural gas			
	(3) Oil (4) Peat			
92.	Chaparral, Maquis, Encinous, Melleseab are important areas of			
	(1) Tropical deciduous woodland			
	(2) Temperate evergreen woodland			
	(3) Tropical evergreen woodland			
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Question No.	Questions
93.	Which of the following food chain is correct?
	(1) Phytoplankton \rightarrow Zooplankton \rightarrow Turtle \rightarrow Crabs
	(2) Phytoplankton \rightarrow Zooplankton \rightarrow Crab \rightarrow Turtle
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94.	Two species cannot remain in same place according to
	(1) Allen's law (2) Gause hypothesis
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95.	Identify the correct pair : and toro - Physical and toro
	(1) Edaphic - Saline soil
er en er En en er	(2) Ecotope-Transition between two ecosystems
₹	(3) Heliophytes-Photophilic plants
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96.	Freshwater ecosystems are nutritionally limited by
	(1) Phosphorous and Iron
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97.	'Threshold of Security' refers to the population level at which			
	(1) The balance between parasite and host is disturbed as the host produces antibodies.			
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98.	Which of following statements is incorrect about the enzyme complex which synthesizes ATP during oxidative phosphorylation?			
	(1) Its activity is not affected by un-coupler			
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99.	"Bermuda grass allergy" is a type of			
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	Which of following blotting techinque is considered more convenient, when no restriction sites are needed to be studied?			
	(1) Northern blotting (2) Dot blot			
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SET-"Z"

(DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

(Ph.D/URS-EE - JAN. 2022)

Code

ENVIRONMENTAL SCIENCE

sr. No. 128

Time: 14 Hours	Total Questi	ons: 100	Max. Marks: 100
Roll No.	(in figure)	•	(in words)
Name:	· · · · · · · · · · · · · · · · · · ·	Father's Name	e:
Mother's Name:	· · · · · · · · · ·	Date of Exami	nation:
	, . ' ·		
(Signature of the candidate))	(Signa	ture of the Invigilator)

CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. All questions are compulsory.

2. The candidates must return the Question book-let as well as ONT answer-sheet to the Invigilator concerned before leaving the Examination High failing which a case of use of unfair-means / mis-behaviour will be register against him / her, in addition to lodging of an FIR with the police. Further answer-sheet of such a candidate will not be evaluated.

3. Keeping in view the transparency of the examination system, carbonless ON Sheet is provided to the candidate so that a copy of OMR Sheet may be kept

the candidate.

4. Question Booklet along with answer key of all the A,B,C and D code will be got uploaded on the university website after the conduct of Entrance Examination. In case there is any discrepancy in the Question Booklet/Answer Key, the same may be brought to the notice of the Controller of Examinations in writing/through E-Mail within 24 hours of uploading the same on the University Website. Thereafter, no complaint in any case, will be considered.

5. The candidate MUST NOT do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question book-let itself. Answers

MUST NOT be ticked in the Question book-let.

6. There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.

Use only Black or Blue **BALL POINT PEN** of good quality in the OMR Answer-

Sheet.

8. BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.

Question No.	Questions			
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Questio	n en
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	-/ Lomporato decidadas woodianu

PHD/URS-EE-2022 (Environmental Science) Code-D
(6)

Question No.	Questions
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PHD/URS-EE-2022 (Environmental Science) Code-D
(8)

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1 4.7	(1) Tectosilicates (2) Sorosilicates
	(3) Inosilicates (4) Phyllosilicates

PHD/URS-EE-2022 (Environmental Science) Code-D
(9)

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	(3) Lithosphere and atmosphere
	(4) Biosphere, lithosphere, atmosphere and hydrosphere
48.	Biogas produced by anaerobic bacterial activity is a mixture of
	(1) CH ₃ OH, CO ₂ , NH ₃ and H ₂ O
	(2) CO ₂ , SO ₂ , NO ₂ , CH ₄ and H ₂ O
	 (3) H₂S, CO₂, CO, CH₄ and LPG (4) CH₄, CO₂, NH₃, H₂S and H₂O
49.	Which of the following statements about the oxidative decarboxylation of pyruvate is correct?
	(1) The oxidative decarboxylation of pyruvate forms acetyl-CoA which is fed into the citric acid cycle
	(2) The oxidative decarboxylation of pyruvate formed in aerobic glycolysis occurs in the cytosol
	(3) The oxidative decarboxylation of pyruvate is catalysed by the enzyme pyruvate decarboxylase
	(4) The oxidative decarboxylation of pyruvate is reversible since there is a large decrease of free energy in the reaction

Question No.	Questions
50.	Function of Release factor RF2(Prokaryotes)/eRF1 (Eukaryotes) during
*	translation is to:
· 	(1) UAA/UGA recognition
· .	(2) Ribosome translocation
. ·	(3) GDP-Exchanging
	(4) GTP-Binding
51.	Amount of 8-hydroxyquinoline (M.W. 145.16) required for preparing 1000
	ml of 5 ppm solution is:
	(1) 1.45 mg (2) 5 mg
	(3) 7.25 mg (4) 14.5 mg
52.	Long term stability of a community depends on:
	(1) Biodiversity (2) Resource partitioning
	(3) Biotic component (4) Succession
53.	The external appearance of the community which may be described on the
* •	basis of dominant plants, density height, colour etc. of plants is known
	as:
	(1) Periodicity (2) Phenology
	(3) Physiognomy (4) Aspection
54.	IUCN headquarters is at:
	(1) Paris, France (2) Vienna, Austria
	(3) Morges, Switzerland (4) New York, USA

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(11)

Question No.	Questions
55.	As compared to CO ₂ , methane has global warming potential of:
	(1) 5-10 times more (2) 20-25 times more
	(3) 40-45 times more (4) 60-65 times more
56.	Laterite soil contains more of
•	(1) Manganese and Silicate
	(2) Magnesium and Boron
	(3) Iron and Aluminium
	(4) Potassium and Lead
57.	Universally accepted method for isolating semivolatile organic compound from their matrices is (1) Solvent extraction (2) Double infiltration (3) Sedimentation technique (4) Permeation
58.	The kind of association where both the population are benefitted, but no essential for the survival of either population is referred to as: (1) Competition (2) Exploitation (3) Amensalism (4) Protocooperation
1	Species diversity increases as one proceeds from (1) Higher to lower altitude and lower to higher latitude
	2) Lower to higher altitude and higher to lower latitude
	3) Lower to higher altitude and lower to higher latitude4) Higher to lower altitude and higher to lower latitude

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(12)

Questio No.	Questions
60.	Which of the following ecosystems has the lowest net primary production per square metere?
	(1) A grassland (2) An open ocean
	(3) A Coral reef (4) A tropical rain forest
61.	The rate of variation of population (N) with time (t) represented by equation $dN/dt = \gamma N$, follows
•	(1) J-shaped curve (2) S-shaped curve
	(3) Z-shaped curve (4) Parabolic curve
62.	The soil type which is good for agriculture is
	(1) Podozols (2) Latosols
	(3) Serpent Soil (4) Solonachak
63.	Restoration of genetic diversity of a population can be obtained by :
	(1) Sexual selection
	(2) Mutation
-	(3) Genetic drift
	(4) Stabilising selection
64.	As per Indian Standards (BIS) for drinking water desirable limit for total hardness as CaCO ₃ is
	(1) 100 mg/l (2) 200 mg/l
	(3) $300 \mathrm{mg/l}$ (4) $400 \mathrm{mg/l}$

PHD/URS-EE-2022 (Environmental Science) Code-D

The smokestack plumes exhibit 'coning' behaviour when (1) Stable atmospheric conditions exist (2) Atmosphere is unstable (3) The height of the stack is below the inversion layer (4) Inversion exists right from the ground surface above Among total dissolved matter in marine water, chlorine accounts for (1) 30% (2) 55% (3) 12% (4) 6%
 Stable atmospheric conditions exist Atmosphere is unstable The height of the stack is below the inversion layer Inversion exists right from the ground surface above Among total dissolved matter in marine water, chlorine accounts for 30% (2) 55% 12% (4) 6%
(3) The height of the stack is below the inversion layer (4) Inversion exists right from the ground surface above Among total dissolved matter in marine water, chlorine accounts for (1) 30% (2) 55% (3) 12% (4) 6%
(4) Inversion exists right from the ground surface above Among total dissolved matter in marine water, chlorine accounts for (1) 30% (2) 55% (3) 12% (4) 6%
(4) Inversion exists right from the ground surface above Among total dissolved matter in marine water, chlorine accounts for (1) 30% (2) 55% (3) 12% (4) 6%
(1) 30% (2) 55% (3) 12% (4) 6%
(1) 30% (2) 55% (3) 12% (4) 6%
Porovice cotyl Nitrote (DAND: C. 11
Peroxyacetyl Nitrate (PAN) is formed by oxidation of
(i) Hydrocarbons (ii) Isoprene
(iii) Terpene (iv) Arsenic
Choose the correct answer from the codes:
(1) (i) and (iv)
(2) (ii) and (iv)
(3) (iii) and (iv)
(4) (i), (ii) and (iii)
The evolution of genetic resistance to antibiotics among disease-carrying
bacteria is an example of
(1) Stabilizing natural selection
(2) Directional natural selection
(3) Diversifying natural selection
(4) Convergent natural selection

PHD/URS-EE-2022 (Environmental Science) Code-D
(14)

Questio No.	Questions
69.	Beer's Law is applicable in case of:
	(1) Heat transfer
	(2) Convection studies
,	(3) Transmission of light
9	(4) Photochemical reaction
70.	Anemometer is used to measure
	(1) Atmospheric pressure (2) Wind speed
	(3) Atmospheric temperature (4) Wind velocity
71.	Pleistocene represents period of
	(1) Cold climate
	(2) Warm climate
	(3) Alteration of cold and warm climate with high proportion of cold period
	(4) Alteration of cold and warm climate with very high proportion of warm
	period.
72.	Which of the following is a function of M cyclins (product of cdc 13 gene)
	during cell cycle ?
	(1) Activate Cdk1 for S phase
	2) Activate Cdk1 for M phase
	3) Phosphorylation of Cdk
	4) Converts M form of Cdk1 to S form

Questio No.	Questions
73.	Which of the following monomer did not make up DNA?
	(1) Deoxythymidylic acid
	(2) Deoxyguanylic acid
	(3) Deoxyuridylic acid
	(4) Deoxycytidine acid
74.	Bio-oil can be obtained from lignocellulose by
	(1) Combustion (2) Fast pyrolysis
	(3) Gasification (4) Transesterification
75.	During DNA replication, OKazaki fragments are formed on :
	(1) Unopened strands (2) Leading strand
	(3) Unopened proteins (4) Lagging strand
76.	The validity period of Environmental Clearance after Environmental Impac
	Assessment is least for
	(1) Mining projects
<i>y</i> .	(2) River valley projects
	(3) Harbour projects
	(4) Area development projects
77.	Which statement is not correct for hazardous wastes?
	(1) They contain one or more of 39 toxic compounds
.	(2) They catch fire easily
	(3) They are nonreactive and stable
	4) They are capable of corroding metal containers
D/UR	S-EE-2022 (Environmental Science) Code-D (16)

Question No.	Questions
78.	Right to clean environment is guaranteed in Indian Constitution by
	(1) Article 14 (2) Article 19
	(3) Article 21 (4) Article 25
79.	National Ambient Air Quality Standards for major pollutants were notified
	by CPCB in
	(1) 1994 (2) 1984
	(3) 2004 (4) 1974
80.	Public Liability Insurance Act came into existence in the year:
\$	(1) 1986 A Branch A Community S (2) 1989 Through the property of the community of the commu
	(3) 1991 (4) 1995
81.	Which of the foillowing is not present in soluble state in alkaline soils?
,	(1) Potassium (2) Calcium
	(3) Nitrates (4) Phosphorous
82.	Which of the following artificial chromosome has largest carrying capacity?
	(1) BAC (2) YAC
	(3) PAC (4) (6) MAC

PHD/URS-EE-2022 (Environmental Science) Code-D

Question No.	Questions					
83.	Which is the correct sequence for impact assessment process in EIA?					
	(1) Prediction of impacts → Identification of impacts → Description of environment → Evaluation of impacts → Identification of mitigation needs.					
	(2) Identification of impacts → Prediction of impacts → Evaluation of impacts → Identification of mitigation needs.					
	(3) Identification of impacts → Description of environment → Prediction of impacts → Evaluation of impacts → Identification of mitigation needs.					
	(4) Description of environment → Identification of impacts → Prediction of impacts → Evaluation of impacts → Identification of mitigation needs.					
84.	The most commonly used method for desalinization of water is:					
- 1	1) Distillation (2) Reverse osmosis					
(3) Ion-exchange (4) Electrodialysis.					
85. V	Which of the following pertains to "high-waste approach" in dealing with ne solid and hazardous wastes?					
(1) Composting (2) Recycling					
(3) Burying and burning (4) Reusing					

PHD/URS-EE-2022 (Environmental Science) Code-D
(18)

Questio No.	Questions					
86.	In most of the studies, a large sample size is anticipated to					
	(1) Maximize the sampling error					
	(2) Get a low level of precision					
	(3) Maximize the standard deviation					
	(4) Get a high level of precision.					
87.	The geometric mean of 4, 8 and 16 is					
	(1) 9.1 (2) 4.6					
	(3) 8.0 (4) 10.2					
88.	Copper (Cu) is classified according to its geochemical affinity as:					
	(1) Chalcophile element					
	(2) Siderophile element					
	(3) Atmophile element					
	(4) Lithophile element					
89.	Which of the following is used in manufacturing flexible plastic bags and					
	heets?					
	(1) Polyethylene terephthalate					
	(2) Polystyrene					
	(3) TEFLON					
- 1	(4) Low density polyethylene					
90.	Which one of the following is a non-formal environment education and					
a	awareness programme?					
	1) Environmental appreciation courses					
	2) Environmental Education in school system					
	3) National Environment Awareness Campaign					
	4) Environmental Management Business Studies					

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(19)

Questio No.	Questions				
91.					
	Dunes are the most spectacular land forms of ecosystem. (1) Marine (2) Desert				
	(3) Grassland (4) Forest				
92.					
34,	Highest level of species richness is observed in				
	(1) Tropical rain forest				
	(2) Temperate grass lands				
	(3) Coniferous forests				
	(4) Alpine pastures				
93.	The technique of extracting metal from ore bearing rock is called				
	as:				
	(1) Bio extraction				
	(2) Microbial extraction				
	(3) Bio leaching				
	(4) Bio filtration				
94.	A compound that is foreign in nature to biological system is				
	(1) Halogenated compound				
	(2) Aromatic compound				
	(3) Xenobiotic compound				
	(4) Organic compound				
05					
95.	Which of the following is not true about Hatch and Slack cycle?				
	(1) CO ₂ acceptor is PEP				
	(2) Oxaloacetate is first stable product				
	(3) CO ₂ compensation point is very high				
	(4) Thirty ATP are required for synthesis of one glucose molecule				
IDITO					

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(20)

Question No.						
140.	Questions					
96.	Which of the following statements about the generation of ATP in the electron transport chains is correct?					
	(1) The F1 subunit of the ATP synthase contains the motor which is driven to rotate by the proton flow					
	(2) The F0 subunit of the ATP synthase binds ADP and Pi tightly before ATP synthesis occurs					
	(3) The F0 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP					
	(4) The F1 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP					
97.	Chlorella species are widely used in the removal of:					
	(1) Organic waste (2) Hydrocarbons					
	(3) Heavy metals (4) All of these					
98.	Cd, Pb and Hg are nephrotoxic metals as they cause harm to organ.					
	(1) Liver (2) Kideny					
	(3) Pancreas (4) Lungs					
99.	Flood which is caused due to heavy rain or dam break within 6-12 hours of beginning of rainfall is					
	(1) River Floods (2) Flash Floods					
	(3) Lag Time Floods (4) Coastal Floods					
100.	A non directed physico chemical interaction between heavy metal ions and					
	microbial surface are called :					
	(1) Biotransformation (2) Bioconversion					
	(3) Biomining (4) Biosorption					

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