

SET-“Z”

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

(Ph.D/URS-EE – JAN. 2022)

10129

Code

A

ENVIRONMENTAL SCIENCE

Sr. No. _____

Time : 1¼ Hours

Total Questions : 100

Max. Marks : 100

Roll No. _____ (in figure) _____ (in words)

Name : _____ Father's Name : _____

Mother's Name : _____ Date of Examination : _____

(Signature of the candidate)

(Signature of the Invigilator)

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

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10.	<p>Which one of the following is a non-formal environment education and awareness programme ?</p> <p>(1) Environmental appreciation courses (2) Environmental Education in school system (3) National Environment Awareness Campaign (4) Environmental Management Business Studies</p>
11.	<p>Which of the following is not a method for <i>ex-situ</i> conservation of biodiversity ?</p> <p>(1) <i>In vitro</i> repositories (2) Cryobanks (3) Botanical gardens (4) National parks</p>
12.	<p>The Protection of Plant varieties and Farmers Rights Act was passed by the Indian Parliament in</p> <p>(1) 1991 (2) 2001 (3) 2014 (4) 2002</p>
13.	<p>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 ?</p> <p>(1) 80 mg/l (2) 30 mg/l (3) 150 mg/l (4) 100 mg/l</p>
14.	<p>Which of the following is a scorable marker ?</p> <p>(1) nptII (2) hptIV (3) bar (4) gus</p>

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

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25.	<p>As compared to CO₂, methane has global warming potential of :</p> <p>(1) 5-10 times more (2) 20-25 times more (3) 40-45 times more (4) 60-65 times more</p>
26.	<p>Laterite soil contains more of</p> <p>(1) Manganese and Silicate (2) Magnesium and Boron (3) Iron and Aluminium (4) Potassium and Lead</p>
27.	<p>Universally accepted method for isolating semivolatile organic compounds from their matrices is</p> <p>(1) Solvent extraction (2) Double infiltration (3) Sedimentation technique (4) Permeation</p>
28.	<p>The kind of association where both the population are benefitted, but not essential for the survival of either population is referred to as :</p> <p>(1) Competition (2) Exploitation (3) Amensalism (4) Protocooperation</p>
29.	<p>Species diversity increases as one proceeds from</p> <p>(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 latitude (4) Higher to lower altitude and higher to lower latitude</p>

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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_3OH , CO_2 , NH_3 and H_2O (2) CO_2 , SO_2 , NO_2 , CH_4 and H_2O (3) H_2S , CO_2 , CO , CH_4 and LPG (4) CH_4 , CO_2 , NH_3 , H_2S and H_2O
39.	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
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 (2) Mutation (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 mg/l (2) 200 mg/l (3) 300 mg/l (4) 400 mg/l

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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 → Zooplankton → Turtle → Crabs (2) Phytoplankton → Zooplankton → Crab → Turtle (3) Turtle → Crab → Zooplankton → Phytoplankton (4) Zooplankton → Turtle → Crab → Phytoplankton

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58.	<p>Which of following statements is incorrect about the enzyme complex which synthesizes ATP during oxidative phosphorylation ?</p> <p>(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</p>
59.	<p>"Bermuda grass allergy" is a type of</p> <p>(1) Contact allergy (2) Airborne allergy (3) Hydroborne allergy (4) Soilborne allergy</p>
60.	<p>Which of following blotting technique is considered more convenient, when no restriction sites are needed to be studied ?</p> <p>(1) Northern blotting (2) Dot blot (3) Western blotting (4) Southern blotting</p>
61.	<p>Pleistocene represents period of</p> <p>(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.</p>

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62.	<p>Which of the following is a function of M cyclins (product of cdc 13 gene) during cell cycle ?</p> <p>(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</p>
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64.	<p>Bio-oil can be obtained from lignocellulose by</p> <p>(1) Combustion (2) Fast pyrolysis (3) Gasification (4) Transesterification</p>
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Question No.	Questions
83.	<p>The technique of extracting metal from ore bearing rock is called as :</p> <ol style="list-style-type: none">(1) Bio extraction(2) Microbial extraction(3) Bio leaching(4) Bio filtration
84.	<p>A compound that is foreign in nature to biological system is _____.</p> <ol style="list-style-type: none">(1) Halogenated compound(2) Aromatic compound(3) Xenobiotic compound(4) Organic compound
85.	<p>Which of the following is not true about Hatch and Slack cycle ?</p> <ol style="list-style-type: none">(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.	<p>Which of the following statements about the generation of ATP in the electron transport chains is correct ?</p> <p>(1) The F1 subunit of the ATP synthase contains the motor which is driven to rotate by the proton flow</p> <p>(2) The F0 subunit of the ATP synthase binds ADP and Pi tightly before ATP synthesis occurs</p> <p>(3) The F0 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP</p> <p>(4) The F1 subunit of the ATP synthase contains the catalytic centre that synthesizes ATP</p>
87.	<p><i>Chlorella</i> species are widely used in the removal of :</p> <p>(1) Organic waste (2) Hydrocarbons</p> <p>(3) Heavy metals (4) All of these</p>
88.	<p>Cd, Pb and Hg are nephrotoxic metals as they cause harm to ____ organ.</p> <p>(1) Liver (2) Kidney</p> <p>(3) Pancreas (4) Lungs</p>
89.	<p>Flood which is caused due to heavy rain or dam break within 6-12 hours of beginning of rainfall is ____.</p> <p>(1) River Floods (2) Flash Floods</p> <p>(3) Lag Time Floods (4) Coastal Floods</p>

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90.	<p>A non directed physico chemical interaction between heavy metal ions and microbial surface are called :</p> <p>(1) Biotransformation (2) Bioconversion (3) Biomining (4) Biosorption</p>
91.	<p>After 30 PCR cycles, theoretical number of DNA copies produced will be near to :</p> <p>(1) 1073 (2) 107374 (3) 10737418 (4) 1073741824</p>
92.	<p>Tendency of pollutants to become concentrated in the trophic level is :</p> <p>(1) Bioremediation (2) Biomagnification (3) Bio piracy (4) Biorhythm</p>
93.	<p>The inhibitory effect of oxygen on the rate of photosynthesis is known as</p> <p>(1) Warburg effect (2) Emerson effect (3) Pasteur effect (4) Blackman effect</p>
94.	<p>The role of chlorine in water treatment is :</p> <p>(1) To remove hardness (2) To remove ions (3) To remove bacteria (4) To act as coagulant agent</p>
95.	<p>The World Wetland Day is celebrated on _____.</p> <p>(1) 22nd March (2) 5th June (3) 16th September (4) 2nd February</p>

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96.	<p>Ergonomic hazards are caused by</p> <p>(1) Machinery (2) Poorly designed tools (3) Chemicals (4) Electricity</p>
97.	<p>Which of the following is a key intermediate compound linking glycolysis to Kerb's cycle ?</p> <p>(1) Oxaloacetic acid (2) Acetyl Co A (3) Succinyl CoA (4) Pyruvic acid</p>
98.	<p>Species that occur in different geographical regions separated by special barriers are :</p> <p>(1) Allopatric species (2) Endemic species (3) Sibling species (4) Sympatric species</p>
99.	<p>The National Disaster Management Authority is headed by</p> <p>(1) Prime Minister of India (2) President of India (3) Environmental Minister (4) Chief Ministers of states</p>
100.	<p>The carrying capacity of a population is determined by its :</p> <p>(1) Population growth (2) Natality (3) Limiting resources (4) Mortality</p>

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Sr. No. 10126

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Max. Marks : 100

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6.	<p>Which of the following sampling methods is based on probability ?</p> <p>(1) Convenience sampling (2) Quota sampling (3) Judgement sampling (4) Stratified sampling</p>
7.	<p>Which one of the following is not a non-parametric test ?</p> <p>(1) t-test (2) Sign test (3) Chi-square test (4) Run test</p>
8.	<p>In geological studies, a dome shaped intrusion is called as :</p> <p>(1) Volcanic neck (2) Laccolith (3) Nuee ardente (4) Caldera</p>
9.	<p>The Activated Sludge Process is a _____ wastewater treatment process.</p> <p>(1) Chemical (2) Biological (3) Physical (4) Biochemical</p>
10.	<p>The number of organisms of same species per unit area is _____.</p> <p>(1) Dispersion (2) Competition (3) Density (4) Mortality</p>
11.	<p>Most abundant fossil is :</p> <p>(1) Coal (2) Natural gas (3) Oil (4) Peat</p>

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17.	<p>'Threshold of Security' refers to the population level at which</p> <p>(1) The balance between parasite and host is disturbed as the host produces antibodies.</p> <p>(2) Functional response of the predator is very high.</p> <p>(3) Predators no longer find it profitable to hunt for the prey species.</p> <p>(4) Parasites damage the host body but do not cause immediate mortality.</p>
18.	<p>Which of following statements is incorrect about the enzyme complex which synthesizes ATP during oxidative phosphorylation ?</p> <p>(1) Its activity is not affected by un-coupler</p> <p>(2) It contains a protein channel</p> <p>(3) It is inhibited by oligomycin</p> <p>(4) It binds to molecular oxygen</p>
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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 (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 (2) High silica and low volatiles (3) Low silica and low volatiles (4) Low silica and high volatiles
26.	Clay minerals are (1) Tectosilicates (2) Sorosilicates (3) Inosilicates (4) Phyllosilicates

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62.	<p>Highest level of species richness is observed in _____.</p> <ol style="list-style-type: none">(1) Tropical rain forest(2) Temperate grass lands(3) Coniferous forests(4) Alpine pastures
63.	<p>The technique of extracting metal from ore bearing rock is called as :</p> <ol style="list-style-type: none">(1) Bio extraction(2) Microbial extraction(3) Bio leaching(4) Bio filtration
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72.	<p>The soil type which is good for agriculture is</p> <p>(1) Podzols (2) Latosols (3) Serpent Soil (4) Solonchak</p>
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74.	<p>As per Indian Standards (BIS) for drinking water desirable limit for total hardness as $CaCO_3$ is</p> <p>(1) 100 mg/l (2) 200 mg/l (3) 300 mg/l (4) 400 mg/l</p>

Question No.	Questions				
75.	<p>The smokestack plumes exhibit 'coning' behaviour when</p> <ol style="list-style-type: none">(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				
76.	<p>Among total dissolved matter in marine water, chlorine accounts for</p> <table border="0"><tr><td>(1) 30%</td><td>(2) 55%</td></tr><tr><td>(3) 12%</td><td>(4) 6%</td></tr></table>	(1) 30%	(2) 55%	(3) 12%	(4) 6%
(1) 30%	(2) 55%				
(3) 12%	(4) 6%				
77.	<p>Peroxyacetyl Nitrate (PAN) is formed by oxidation of</p> <table border="0"><tr><td>(i) Hydrocarbons</td><td>(ii) Isoprene</td></tr><tr><td>(iii) Terpene</td><td>(iv) Arsenic</td></tr></table> <p>Choose the correct answer from the codes :</p> <ol style="list-style-type: none">(1) (i) and (iv)(2) (ii) and (iv)(3) (iii) and (iv)(4) (i), (ii) and (iii)	(i) Hydrocarbons	(ii) Isoprene	(iii) Terpene	(iv) Arsenic
(i) Hydrocarbons	(ii) Isoprene				
(iii) Terpene	(iv) Arsenic				
78.	<p>The evolution of genetic resistance to antibiotics among disease-carrying bacteria is an example of</p> <ol style="list-style-type: none">(1) Stabilizing natural selection(2) Directional natural selection(3) Diversifying natural selection(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
81.	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
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 known as: (1) Periodicity (2) Phenology (3) Physiognomy (4) Aspection

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

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
SCIENCE**

Sr. No. 10127

Code

C

Time : 1½ Hours

Total Questions : 100

Max. Marks : 100

Roll No. _____ (in figure) _____ (in words)

Name : _____ Father's Name : _____

Mother's Name : _____ Date of Examination : _____

(Signature of the candidate)

(Signature of the Invigilator)

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3. 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.
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.
7. Use only Black or Blue **BALL POINT PEN** of good quality in the OMR Answer-Sheet.
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Question No.	Questions
1.	<p>The rate of variation of population (N) with time (t) represented by equation $dN/dt = \gamma N$, follows</p> <p>(1) J-shaped curve (2) S-shaped curve (3) Z-shaped curve (4) Parabolic curve</p>
2.	<p>The soil type which is good for agriculture is</p> <p>(1) Podzols (2) Latosols (3) Serpent Soil (4) Solonchak</p>
3.	<p>Restoration of genetic diversity of a population can be obtained by :</p> <p>(1) Sexual selection (2) Mutation (3) Genetic drift (4) Stabilising selection</p>
4.	<p>As per Indian Standards (BIS) for drinking water desirable limit for total hardness as CaCO_3 is</p> <p>(1) 100 mg/l (2) 200 mg/l (3) 300 mg/l (4) 400 mg/l</p>
5.	<p>The smokestack plumes exhibit 'coning' behaviour when</p> <p>(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</p>

Question No.	Questions
10.	<p>Anemometer is used to measure</p> <p>(1) Atmospheric pressure (2) Wind speed</p> <p>(3) Atmospheric temperature (4) Wind velocity</p>
11.	<p>Amount of 8-hydroxyquinoline (M.W. 145.16) required for preparing 1000 ml of 5 ppm solution is :</p> <p>(1) 1.45 mg (2) 5 mg</p> <p>(3) 7.25 mg (4) 14.5 mg</p>
12.	<p>Long term stability of a community depends on :</p> <p>(1) Biodiversity (2) Resource partitioning</p> <p>(3) Biotic component (4) Succession</p>
13.	<p>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:</p> <p>(1) Periodicity (2) Phenology</p> <p>(3) Physiognomy (4) Aspection</p>
14.	<p>IUCN headquarters is at :</p> <p>(1) Paris, France (2) Vienna, Austria</p> <p>(3) Morges, Switzerland (4) New York, USA</p>
15.	<p>As compared to CO₂, methane has global warming potential of :</p> <p>(1) 5-10 times more (2) 20-25 times more</p> <p>(3) 40-45 times more (4) 60-65 times more</p>

Question No.	Questions
16.	<p>Laterite soil contains more of</p> <p>(1) Manganese and Silicate (2) Magnesium and Boron</p> <p>(3) Iron and Aluminium (4) Potassium and Lead</p>
17.	<p>Universally accepted method for isolating semivolatile organic compounds from their matrices is</p> <p>(1) Solvent extraction (2) Double infiltration</p> <p>(3) Sedimentation technique (4) Permeation</p>
18.	<p>The kind of association where both the population are benefitted, but not essential for the survival of either population is referred to as :</p> <p>(1) Competition (2) Exploitation</p> <p>(3) Amensalism (4) Protocooperation</p>
19.	<p>Species diversity increases as one proceeds from</p> <p>(1) Higher to lower altitude and lower to higher latitude</p> <p>(2) Lower to higher altitude and higher to lower latitude</p> <p>(3) Lower to higher altitude and lower to higher latitude</p> <p>(4) Higher to lower altitude and higher to lower latitude</p>
20.	<p>Which of the following ecosystems has the lowest net primary production per square meter ?</p> <p>(1) A grassland (2) An open ocean</p> <p>(3) A Coral reef (4) A tropical rain forest</p>

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

Question No.	Questions
34.	<p>A compound that is foreign in nature to biological system is _____.</p> <p>(1) Halogenated compound (2) Aromatic compound (3) Xenobiotic compound (4) Organic compound</p>
35.	<p>Which of the following is not true about Hatch and Slack cycle ?</p> <p>(1) CO₂ acceptor is PEP (2) Oxaloacetate is first stable product (3) CO₂ compensation point is very high (4) Thirty ATP are required for synthesis of one glucose molecule</p>
36.	<p>Which of the following statements about the generation of ATP in the electron transport chains is correct ?</p> <p>(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</p>

Question No.	Questions
37.	<p><i>Chlorella</i> species are widely used in the removal of :</p> <p>(1) Organic waste (2) Hydrocarbons (3) Heavy metals (4) All of these</p>
38.	<p>Cd, Pb and Hg are nephrotoxic metals as they cause harm to ____ organ.</p> <p>(1) Liver (2) Kidney (3) Pancreas (4) Lungs</p>
39.	<p>Flood which is caused due to heavy rain or dam break within 6-12 hours of beginning of rainfall is ____.</p> <p>(1) River Floods (2) Flash Floods (3) Lag Time Floods (4) Coastal Floods</p>
40.	<p>A non directed physico chemical interaction between heavy metal ions and microbial surface are called :</p> <p>(1) Biotransformation (2) Bioconversion (3) Biomining (4) Biosorption</p>
41.	<p>Pleistocene represents period of</p> <p>(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.</p>

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

Question No.	Questions
52.	Establishment of a species in a new area is referred to as (1) Ecesis (2) Aggregation (3) Stabilization (4) Migration
53.	The Zooplankton of continental shelf is generally the same as in (1) Estuary region (2) Pelagic region (3) Neritic region (4) Benthic region
54.	'Mesothelioma' is caused by toxicity of (1) Mercury (2) Lead (3) Arsenic (4) Carbon monoxide
55.	A volcanic eruption will be violent if there is (1) High silica and high volatiles (2) High silica and low volatiles (3) Low silica and low volatiles (4) Low silica and high volatiles
56.	Clay minerals are (1) Tectosilicates (2) Sorosilicates (3) Inosilicates (4) Phyllosilicates
57.	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

Question No.	Questions
58.	<p>Biogas produced by anaerobic bacterial activity is a mixture of</p> <ol style="list-style-type: none">(1) CH_3OH, CO_2, NH_3 and H_2O(2) CO_2, SO_2, NO_2, CH_4 and H_2O(3) H_2S, CO_2, CO, CH_4 and LPG(4) CH_4, CO_2, NH_3, H_2S and H_2O
59.	<p>Which of the following statements about the oxidative decarboxylation of pyruvate is correct ?</p> <ol style="list-style-type: none">(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
60.	<p>Function of Release factor RF2(Prokaryotes)/eRF1 (Eukaryotes) during translation is to :</p> <ol style="list-style-type: none">(1) UAA/UGA recognition(2) Ribosome translocation(3) GDP-Exchanging(4) GTP-Binding

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

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

Question No.	Questions
88.	<p>The Stockholm Convention is a global treaty to protect humans from</p> <p>(1) Toxic gases (2) Hospital acquired infections (3) Persistent organic pollutants (4) Carbon monoxide</p>
89.	<p>Which of the following is not a restriction endonuclease ?</p> <p>(1) DNA ligase (2) Bam H1 (3) Eco R1 (4) Hind III</p>
90.	<p>Which of the following is the right match concerning the toxic metal and associated adverse impact ?</p> <p>(1) Zn-Brain tissue damage (2) Ni-Keratosiis (3) Ar-Renal poisoning (4) Hg-Pulmonary disease</p>
91.	<p>Most abundant fossil is :</p> <p>(1) Coal (2) Natural gas (3) Oil (4) Peat</p>
92.	<p>Chaparral, Maquis, Encinuous, Melleseab are important areas of</p> <p>(1) Tropical deciduous woodland (2) Temperate evergreen woodland (3) Tropical evergreen woodland (4) Temperate deciduous woodland</p>

Question No.	Questions				
97.	<p>'Threshold of Security' refers to the population level at which</p> <ol style="list-style-type: none"> (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. 				
98.	<p>Which of following statements is incorrect about the enzyme complex which synthesizes ATP during oxidative phosphorylation ?</p> <ol style="list-style-type: none"> (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 				
99.	<p>"Bermuda grass allergy" is a type of</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">(1) Contact allergy</td> <td style="width: 50%;">(2) Airborne allergy</td> </tr> <tr> <td>(3) Hydroborne allergy</td> <td>(4) Soilborne allergy</td> </tr> </table>	(1) Contact allergy	(2) Airborne allergy	(3) Hydroborne allergy	(4) Soilborne allergy
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100.	<p>Which of following blotting technique is considered more convenient, when no restriction sites are needed to be studied ?</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">(1) Northern blotting</td> <td style="width: 50%;">(2) Dot blot</td> </tr> <tr> <td>(3) Western blotting</td> <td>(4) Southern blotting</td> </tr> </table>	(1) Northern blotting	(2) Dot blot	(3) Western blotting	(4) Southern blotting
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(Ph.D/URS-EE – JAN. 2022)

Code

D

ENVIRONMENTAL SCIENCE

Sr. No. 10128

Time : 1¼ Hours

Total Questions : 100

Max. Marks : 100

Roll No. _____ (in figure) _____ (in words)

Name : _____ Father's Name : _____

Mother's Name : _____ Date of Examination : _____

(Signature of the candidate)

(Signature of the Invigilator)

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Question No.	Questions
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2.	<p>The Protection of Plant varieties and Farmers Rights Act was passed by the Indian Parliament in</p> <p>(1) 1991 (2) 2001 (3) 2014 (4) 2002</p>
3.	<p>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 ?</p> <p>(1) 80 mg/l (2) 30 mg/l (3) 150 mg/l (4) 100 mg/l</p>
4.	<p>Which of the following is a scorable marker ?</p> <p>(1) nptII (2) hptIV (3) bar (4) gus</p>
5.	<p>National Land Reform Policy stresses on</p> <p>(1) Tenancy reforms (2) Natural regeneration (3) Restoration of ecological balance (4) Watershed approach</p>

Question No.	Questions
17.	<p>Which of the following is a key intermediate compound linking glycolysis to Kerb's cycle ?</p> <p>(1) Oxaloacetic acid (2) Acetyl Co A (3) Succinyl CoA (4) Pyruvic acid</p>
18.	<p>Species that occur in different geographical regions separated by special barriers are :</p> <p>(1) Allopatric species (2) Endemic species (3) Sibling species (4) Sympatric species</p>
19.	<p>The National Disaster Management Authority is headed by</p> <p>(1) Prime Minister of India (2) President of India (3) Environmental Minister (4) Chief Ministers of states</p>
20.	<p>The carrying capacity of a population is determined by its :</p> <p>(1) Population growth (2) Natality (3) Limiting resources (4) Mortality</p>
21.	<p>Which one of the following DNA markers can be used to distinguish between a homozygote and heterozygote ?</p> <p>(1) RAPD (2) AFLP (3) RFLP (4) ISSR</p>

Question No.	Questions				
37.	<p>'Threshold of Security' refers to the population level at which</p> <ol style="list-style-type: none"> (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. 				
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Question No.	Questions
41.	Brown forest soil is also known as (1) Mollisols (2) Altisols (3) Spodosols (4) Entisols
42.	Establishment of a species in a new area is referred to as (1) Ecesis (2) Aggregation (3) Stabilization (4) Migration
43.	The Zooplankton of continental shelf is generally the same as in (1) Estuary region (2) Pelagic region (3) Neritic region (4) Benthic region
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Question No.	Questions
47.	<p>In biogeochemical cycle, a chemical element or molecule moves through</p> <ol style="list-style-type: none">(1) Biosphere and lithosphere(2) Biosphere, lithosphere and atmosphere(3) Lithosphere and atmosphere(4) Biosphere, lithosphere, atmosphere and hydrosphere
48.	<p>Biogas produced by anaerobic bacterial activity is a mixture of</p> <ol style="list-style-type: none">(1) CH_3OH, CO_2, NH_3 and H_2O(2) CO_2, SO_2, NO_2, CH_4 and H_2O(3) H_2S, CO_2, CO, CH_4 and LPG(4) CH_4, CO_2, NH_3, H_2S and H_2O
49.	<p>Which of the following statements about the oxidative decarboxylation of pyruvate is correct ?</p> <ol style="list-style-type: none">(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
55.	<p>As compared to CO₂, methane has global warming potential of :</p> <p>(1) 5-10 times more (2) 20-25 times more</p> <p>(3) 40-45 times more (4) 60-65 times more</p>
56.	<p>Laterite soil contains more of</p> <p>(1) Manganese and Silicate</p> <p>(2) Magnesium and Boron</p> <p>(3) Iron and Aluminium</p> <p>(4) Potassium and Lead</p>
57.	<p>Universally accepted method for isolating semivolatile organic compounds from their matrices is</p> <p>(1) Solvent extraction (2) Double infiltration</p> <p>(3) Sedimentation technique (4) Permeation</p>
58.	<p>The kind of association where both the population are benefitted, but not essential for the survival of either population is referred to as :</p> <p>(1) Competition (2) Exploitation</p> <p>(3) Amensalism (4) Protocooperation</p>
59.	<p>Species diversity increases as one proceeds from</p> <p>(1) Higher to lower altitude and lower to higher latitude</p> <p>(2) Lower to higher altitude and higher to lower latitude</p> <p>(3) Lower to higher altitude and lower to higher latitude</p> <p>(4) Higher to lower altitude and higher to lower latitude</p>

Question No.	Questions				
65.	<p>The smokestack plumes exhibit 'coning' behaviour when</p> <ol style="list-style-type: none"> (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 				
66.	<p>Among total dissolved matter in marine water, chlorine accounts for</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">(1) 30%</td> <td style="width: 50%;">(2) 55%</td> </tr> <tr> <td>(3) 12%</td> <td>(4) 6%</td> </tr> </table>	(1) 30%	(2) 55%	(3) 12%	(4) 6%
(1) 30%	(2) 55%				
(3) 12%	(4) 6%				
67.	<p>Peroxyacetyl Nitrate (PAN) is formed by oxidation of</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">(i) Hydrocarbons</td> <td style="width: 50%;">(ii) Isoprene</td> </tr> <tr> <td>(iii) Terpene</td> <td>(iv) Arsenic</td> </tr> </table> <p>Choose the correct answer from the codes :</p> <ol style="list-style-type: none"> (1) (i) and (iv) (2) (ii) and (iv) (3) (iii) and (iv) (4) (i), (ii) and (iii) 	(i) Hydrocarbons	(ii) Isoprene	(iii) Terpene	(iv) Arsenic
(i) Hydrocarbons	(ii) Isoprene				
(iii) Terpene	(iv) Arsenic				
68.	<p>The evolution of genetic resistance to antibiotics among disease-carrying bacteria is an example of</p> <ol style="list-style-type: none"> (1) Stabilizing natural selection (2) Directional natural selection (3) Diversifying natural selection (4) Convergent natural selection 				

Question No.	Questions
69.	Beer's Law is applicable in case of : (1) Heat transfer (2) Convection studies (3) Transmission of light (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

Question 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 Impact Assessment is least for (1) Mining projects (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

Question No.	Questions
86.	<p>In most of the studies, a large sample size is anticipated to</p> <ol style="list-style-type: none"> (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.	<p>The geometric mean of 4, 8 and 16 is</p> <ol style="list-style-type: none"> (1) 9.1 (2) 4.6 (3) 8.0 (4) 10.2
88.	<p>Copper (Cu) is classified according to its geochemical affinity as :</p> <ol style="list-style-type: none"> (1) Chalcophile element (2) Siderophile element (3) Atmophile element (4) Lithophile element
89.	<p>Which of the following is used in manufacturing flexible plastic bags and sheets ?</p> <ol style="list-style-type: none"> (1) Polyethylene terephthalate (2) Polystyrene (3) TEFLON (4) Low density polyethylene
90.	<p>Which one of the following is a non-formal environment education and awareness programme ?</p> <ol style="list-style-type: none"> (1) Environmental appreciation courses (2) Environmental Education in school system (3) National Environment Awareness Campaign (4) Environmental Management Business Studies

Question No.	Questions
91.	Dunes are the most spectacular land forms of _____ ecosystem. (1) Marine (2) Desert (3) Grassland (4) Forest
92.	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
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

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

Answerkey for all Series/Codes of Phd/ URS Environmental Science Entrance Test 2021-22

Sr. No	A	B	C	D
1	4	3	1	4
2	1	2	2	2
3	4	1	2	2
4	2	2	3	4
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49	3	1	1	1
50	2	3	3	1

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98	1	1	4	2
99	1	4	2	2
100	3	3	2	4

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