SLR-JI-195

Seat No.	

Set P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2019
Environmental Science
FUNDAMENTALS OF ENVIRONMENT

Day & Date: Monday, 18-11-2019 Max. Marks: 70
Time: 11:30 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat and labeled diagrams wherever necessary.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) Which one is true?
   a) commensalism when none of the interacting population affect each other
   b) symbiosis when the interaction is useful to both the populations
   c) symbiosis when neither population affects each other
   d) commensalism when the interaction is useful to both the populations

2) Animals that get energy by eating the carcasses of other animals that have been killed by predators or have died of natural causes are called _____.
   a) Scavenger b) Omnivores
   c) Heterotrophs d) Detritivores

3) Sleep like state which an animal adopt to lower metabolic rates is called _____.
   a) transpiration b) shedding of levels
   c) hibernating d) migration

4) Consider the following food chain: Plants (Insects (Rodents (Snakes Which level in this food chain contains the most energy?
   a) Plants b) Insects
   c) Snakes d) Rodents

5) Human population growth curve is a _____.
   a) S shaped curve b) Parabola curve
   c) J shaped curve d) Zig zag curve

6) The optimum pH for bacterial growth in soil is _____.
   a) 7-8 b) 5-6
   c) 9-10 d) 3-2

7) In a population, unrestricted reproductive capacity is called as _____.
   a) Carrying capacity b) Biotic potential
   c) Birthrate d) Fertility rate

8) Food chain in which microorganisms breakdown the food formed by primary producers is _____.
   a) parasitic food chain b) detritus food chain
   c) consumer food chain d) predator food chain

9) Match the following biosphere reserves with respective state of location

1)	Nokrek	i)	Assam
2)	Simplipal	ii)	Odisha
3)	Cold desert	iii)	Arunachal Pradesh
4)	Dihang –Dibang	iv)	Himachal Pradesh
5)	Dibru –Saikhow	v)	Meghalaya

a) 1-ii, 2-v, 3-i, 4-iii, 5-iv b) 1-v, 2-iii, 3-iv, 4-ii, 5-i
c) 1-iii, 2-i, 3-ii, 4-v, 5-iv d) 1-v, 2-ii, 3-iv, 4-iii, 5-i

10) Species that have many offspring at one are usually _____.
a) r-selected b) K-selected
c) both r-and K- selected d) not selected

11) The first species to live on new land, such as that formed from volcanic lava are called _____.
a) climax community b) keystone species
c) foundation species d) pioneer species

12) Which type of mimicry involves multiple species with similar warning coloration that are all toxic to predators?
a) Batesian mimicry b) Müllerian mimicry
c) Emsleyan/Mertensian mimicry d) Mertensian mimicry

13) Ozone depletion is caused by _____.
a) Nitrous oxides b) Chlorofluorocarbons
c) Carbon dioxide d) Methane

14) Hydrosphere includes _____.
a) Animal b) Plants
c) Soil d) Water bodies

Q.2 A) Answer the following questions. (Any Four) **08**
1) Define the Biosphere.
2) What is Ecotone and edge effect?
3) Define the terms k and r selected species.
4) Define the Shelford's law of tolerance?
5) Define the term density and abundance.

B) Write Notes. (Any Two) **06**
1) Hydrosphere and its importance
2) Ecosystem stability
3) Concept of productivity

Q.3 A) Answer the following questions. (Any Two) **08**
1) Use of ecological process in maintains ecological balance.
2) Explain the edaphic factory.
3) Comment on Environmental Ethics and its dimensions.

B) Answer the following questions. (Any One) **06**
1) Illustrate the atmosphere and its composition
2) Discuss Liebig's law of limitation

Q.4 A) Answer the following questions. (Any Two) **10**
1) Elaborate type of ecological Succession.
2) Comments on Energy flow in ecosystem.
3) What is community ecology? Explain its characteristics.

B) Answer the following questions. (Any One) **04**

1) Comment Environmental factors.
2) Comment on biological factors in environmental.

Q.5 Answer the following questions. (Any Two) **14**

a) Explain the components of environment in detail.
b) Discuss the various theories of climax concept.
c) Explain the Structure and functional attributes of ecosystem.

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Seat No.	

Set P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2019
Environmental Science
ENVIRONMENTAL CHEMISTRY

Day & Date: Tuesday, 05-11-2019 Max. Marks: 70
Time: 11:30 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat and labeled diagrams wherever necessary.

Q.1 Fill in the blanks by choosing correct alternatives given below. **14**

1) Calculate the pH that results when the following solutions are mixed.
   i) 35 mL of 0.20 M formic add
   ii) 55 mL of 0.10 M sodium formate
   iii) 110 mL of water
   a) 3.64 b) 3.11
   c) 4.58 d) 3.39

2) The main contains of stratosphere is _____.
   a) N_2 b) O_2
   c) H_2O d) All

3) Which of the responses contains all the true statements and no others?
   i) The predominant color in its acid range is yellow.
   ii) In the middle of the pH range of its color change a solution containing the indicator will probably be orange.
   iii) At pH = 7.00, a solution containing this indicator (and no other colored species) will be red. (Hint: Write the equilibrium constant expression for the indicator.)
   iv) At pH = 7.00, most of the indicator is in the un-ionized form
   v) The pH at which the indicator changes color is pH = 4
   a) i, iii, v b) ii, iv
   c) iii, iv, v d) i, ii, iii, v

4) Calculate the pH of the solution resulting from the addition of 20.0 mL of 0.100 M NaOH to 30.0 mL of 0.100 M HNO_3.
   a) 1.35 b) 1.70
   c) 1.95 d) 2.52

5) First law of thermodynamics is a restatement of _____.
   a) law of conservation of charge b) law of conservation of parity
   c) law of conservation of energy d) law of conservation of mass

6) Thermodynamics is the branch of physical science concerned with _____.
   a) mass and its transformations to and from other forms of energy
   b) Potential and its transformations to and from other forms of energy
   c) kinetic energy and its transformations to and from other forms of energy
   d) heat and its transformations to and from other forms of energy

7) Calorimetry is a branch of science dealing with _____.
   a) measuring the amount of chemicals consumed
   b) measuring the maximum pressure developed in a reaction
   c) measuring the amount of energy transferred as heat
   d) measuring the amount of work done in a reaction

8) How many grams of NaF would have to be added to 2.00 L of 0.100 M HF to yield a solution with a pH = 4.00?
   a) 300 g b) 36 g
   c) 6.9 g d) 60. G

9) Substances which cannot be decomposed into two different substances by chemical process are called
   a) Atoms b) Molecules
   c) Elements d) Compounds

10) After a chemical reaction, the total mass of reactants and products _____.
   a) Is always increased b) Is always decreased
   c) Is not changed d) Is always less

11) Chlorine demand of water is equal to _____.
   a) applied chlorine
   b) residual chlorine
   c) sum of residual chlorine
   d) Difference of lied and residual chlorine

12) Standard BOD measures at _____.
   a) 20C b) 25C
   c) 30C d) 35C

13) Eutrophication of water means _____.
   a) Accumulation of plant nutrient in water bodies
   b) Accumulation of metals in water bodies
   c) Accumulation of pesticides in water bodies
   d) Accumulation of gases in water bodies

14) The adsorption capacity of activated carbon is measured by _____.
   a) Freundlich isotherm b) Langmuir Isotherm
   c) BET isotherm d) All of the Above

Q.2 A) Answer the following questions. (Any Four) **08**

1) Briefly write the water sampling techniques for freshwaters, ground water and marine water.
2) What are the causes of fluctuation in global temperature?
3) What is soil salinity?
4) Reaction of Sox and Nox in atmosphere.
5) What is chemical equilibrium?

B) Write Notes. (Any Two) **06**

1) Alkalinity and acidity
2) Soil Nutrients
3) PAN in atmosphere

Q.3 A) Answer the following questions. (Any Two) **08**

1) Explain the Term -molecular weight, equivalent weight, normality and morality.
2) What are Colloids or Colloidal Solution?
3) Explain the types of filtration techniques.

B) Write the significance. (Any One) **06**

1) redox- potential
2) Lambert –Beer Law

Q.4 A) Sketch a neat labeled diagram. (Any Two) **10**

1) Nitrogen cycle
2) Structure of atmosphere
3) Soil profile

B) Answer the following questions. (Any One) **04**

1) Explain the Chemical processes for formation of inorganic particulate matter.
2) Explain adverse effect of acid rain.

Q.5 Write the principle and theory. (Any Two) **14**

a) Sedimentation of particles
b) Adsorption
c) Gibbs energy Potential

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Seat No.	

Set P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2019
Environmental Science
COMPUTER APPLICATIONS

Day & Date: Thursday, 07-11-2019 Max. Marks: 70
Time: 11:30 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. **14**

1) Amongst the following which symbol is used for re-writeable CD.
   a) CD-RW b) CD-R
   c) SACD d) VCD

2) Floppy disk is mostly likely compare with _____.
   a) CD b) Music Disc
   c) Pen Drive d) Cassette Type

3) Computer network that extends over large geographical distance or place is known as _____.
   a) LAN b) Network
   c) WAN d) None of these

4) ____ is the study, design, development, implementation, support or management of computer-based information systems—particularly software applications and computer hardware.
   a) Remote Sensing
   b) Geographical information system
   c) Information technology
   d) None of the above

5) What is the full form of URL?
   a) Uniform Resource Locator b) Unique Resource Locator
   c) Unique reference Iable d) None of these

6) The development of efficient algorithms for measuring sequence similarity is an important goal of _____.
   a) Information Analysis b) Bioinformatics
   c) Biomodeling d) Biotechnology

7) GIS based software deals with ____ geographical data.
   a) Spatial Data b) Numeric Data
   c) Complex Data d) Binary Data

8) ____ is the example of computer software used for geographical studies.
   a) Geographical Information System
   b) Remote Sensing
   c) Aerial Photograph
   d) All of the above

9) First personal Computer controlled with a key board was invented in _____.
   a) 1955 b) 1957
   c) 1956 d) 1952

10) The output quality of printer is measured by _____.
   a) Dot per inch
   b) Dot per sq. inch
   c) Dots printed per unit time
   d) All of the above

11) Intersection of column and row on worksheet is called as _____.
   a) Cell
   b) Address
   c) Column
   d) Value

12) The high speed mode of operation of the USB was introduced by _____.
   a) ISA
   b) ANSI
   c) USB 3.0
   d) USB 2.0

13) Related fields in database are grouped to form a _____.
   a) Data File
   b) Data Record
   c) Manu
   d) Bank

14) Thematic maps are use to represent _____.
   a) They provide specific information about particular locations
   b) They provide general information about spatial patterns
   c) They can be used to compare patterns on two or more maps
   d) All of the above

Q.2 A) Answer the following questions. (Any Four) **08**

1) What is compact disk technology?
2) What is the purpose of personal computer?
3) Explain the work of an information technology.
4) What is DBMS in databases?
5) Enlist different importance of bioinformatics in the field of environmental studies.

B) Write notes. (Any Two) **06**

1) Computer input divices
2) WAN
3) Uses of spreadsheet

Q.3 A) Answer the following questions. (Any Two) **08**

1) Explain in brief history of computer.
2) Elaborate the relation between environmental science and internet.
3) With neat labelled diagram explain central processing unit.

B) Write notes. (Any One) **06**

1) LAN
2) Website Designing

Q.4 A) Answer the following questions. (Any Two) **10**

1) With detailed example explain in detail operating systems.
2) Define multimedia, elaborate different major characteristics of multimedia.
3) Explain scope, tools and application of bioinformatics.

B) Write notes. (Any One) **04**

1) Applications of Computer in geological studies
2) Pen Drives

Q.5 Answer the following questions. (Any Two) **14**

a) Define word processing; explain standard features of word processors with full features.
b) Explain in detail environmental modeling.
c) Write in detail standard software's for representing various data?

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Seat No.	

Set P

M.Sc. (Semester - I) (CBCS) Examination Oct/Nov-2019
Environmental Science
INTRODUCTION TO GEO-SCIENCE

Day & Date: Saturday, 09-11-2019 Max. Marks: 70
Time: 11:30 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat and labeled diagrams wherever necessary.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) In which type of rocks are coal and petroleum found?
   a) Granite b) Igneous
   c) Sedimentary d) Metamorphic

2) Earth's crust below the oceans is composed of _____.
   a) Igneous rocks b) Sedimentary rocks
   c) Metamorphic rocks d) Slate

3) Hardness that cannot be removed by boiling is called _____.
   a) Temporary Hardness b) Permanent Hardness
   c) Both A & B d) None of these

4) Plants use CO_2 in the process of _____ to make sugar wand _____.
   a) Respiration, water b) Respiration, CO_2
   c) Photosynthesis, water d) Photosynthesis, O_2

5) Due to the deforestation _____.
   a) Human activities are highly impacted.
   b) Local climatic conditions such relative humidity and ambient temperature highly impacted.
   c) Surface water quality affected.
   d) Solar radiation affected.

6) Soil minerals form the basis of soil. They are produced from rocks (parent material) through the processes of _____.
   a) weathering b) crystallization
   c) scattering d) grinding

7) Volcanoes are caused due to the _____.
   a) Sedimentary rock formation
   b) Groundwater movement
   c) Tectonic plate movement/breaking
   d) Crust material rearrangement

8) Among the following which is not a example of metamorphic rock _____.
   a) Gneiss b) Marble
   c) Quartzite d) Shale

9) Solar radiation is radiant energy emitted by the sun from a _____.
   a) Temperature inversion b) Nuclear fusion reaction
   c) Nuclear fission reaction d) Chemical radiation reaction

10) Temperature inversion, a reversal of the normal behavior of temperature in the _____.
   a) Mesosphere b) Thermosphere
   c) Lithosphere d) Troposphere

11) The _____ is the rate of decrease of temperature with altitude in the stationary atmosphere at a given time and location.
   a) Dry adiabatic laps rate (dALR)
   b) Adiabatic laps rate
   c) Environmental laps rate (ELR)
   d) Temperature laps rate (TLR)

12) Cyclones are the _____ system
   a) Moderate pressure b) High pressure
   c) Low pressure d) inversion

13) The classification of rocks is based on two criteria _____.
   a) Texture and crystallization b) Composition and minerals
   c) Texture and composition d) Crystallization and minerals

14) Which is not a greenhouse gas among the following?
   a) Hydrogen sulphide (H_2S) b) CO_2
   c) CH_4 d) CFC ’

Q.2 A) Answer the following (Any Four) **08**
1) Explain Process of soil formation.
2) Significance of Windrose diagram.
3) Importance of Carbon cycle.
4) Organochloride pesticides.
5) Troposphere.

B) Write Notes. (Any Two) **06**
1) Atmospheric stability
2) Smelting of minerals
3) Types of mineral resources

Q.3 A) Answer the following questions. (Any Two) **08**
1) Discuss: Plate tectonics theory?
2) Explain: Smog formation?
3) Fluoride contamination in groundwater.

B) Answer the following questions. (Any One) **06**
1) What is temperature inversion? Explain phenomenon of Urban Heat Island?
2) What is relative humidity? Explain its significance in air pollution dispersion?

Q.4 A) Answer the following questions. (Any Two) **10**
1) Explain Adiabatic and dry adiabatic laps rate?
2) Discuss Global warming
3) Significance of drinking water standards in maintaining the quality of drinking water?

B) Answer the following questions. (Any One) **04**
1) What are the macro and micro climatic ?
2) Difference between chemical fertilizers and bio fertilizers?

Q.5 Answer the following questions. (Any Two) **14**

a) Discuss the impacts of anthropogenic activities on groundwater quality and availability?

b) Explain the process of dispersion of air pollutants in ambient air. What is Gaussian Plume dispersion model?

c) Explain concept of Cyclone and Anticyclones?

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Seat No.	

Set P

M.Sc. (Semester - II) (CBCS) Examination Oct/Nov-2019
Environmental Science
BIODIVERSITY AND CONSERVATION

Day & Date: Monday, 04-11-2019 Max. Marks: 70
Time: 11:30 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. **14**

1) The basic strategies of biodiversity conservation is/are _____.
   a) in situ (on site) b) ex situ
   c) Both (a) and (b) d) None of these

2) In India, sacred forests are located in.
   a) Maharashtra b) Karnataka
   c) Kerala and Meghalaya d) All of these

3) Extinction of species includes _____.
   a) mass extinction b) natural extinction
   c) anthropogenic extinction d) All of these

4) 'IUCN' stands for.
   a) Interstate Unity of Culture Nature
   b) Indian Union Congress Nation
   c) International Unity of Community and Nationality
   d) International Union for the Conservation of Nature and Natural Resources

5) The presence of all of the following tend to increase species diversity except _____.
   a) Patchy environments b) Competitive exclusion
   c) Keystone predators d) Moderate disturbances

6) Biodiversity hotspots are recognized on the basis of _____.
   a) the number of endemic species they contain
   b) their proximity to national parks and reserves
   c) the degree to which the included species are threatened with extinction
   d) Both (b) and (c)

7) _____ forests are known to be a 'Forest that never burns'
   a) Tundra forest b) Tropical forest
   c) Coniferous forest d) Deciduous forest

8) _____ national parks 'Lion' is being conserved?
   a) Corbett b) Gir
   c) Kaziranga d) Dudhwa

9) 'Project Tiger' is a wild life conservation project initiated in India in _____.
   a) 1942 b) 1974
   c) 1972 d) 1971

10) 'Red Data Book' is published by _____.
a) IUCN b) BNHS
c) WWF d) Green peace

11) Genetic variation between distinct populations of some species is known as _____.
a) Species diversity b) Ecosystem diversity
c) Genetic diversity d) Biodiversity

12) Which of the following is a biodiversity hot spot in India?
a) Gulf of Mannar b) Western Ghats
c) Panchmarhi d) Sunderbans

13) Which of the following is an in-situ conservation measure taken by India?
a) Project Elephant b) Project Lion
c) Project Rhino d) All of the above

14) Who introduced the concept of biodiversity hotspot?
a) Christopher Columbus b) Norman Myers
c) WWF d) Charles Darwin

Q.2 A) Attempt any four of the following question. **08**
1) Discuss the global environmental changes.
2) Explain Microbial diversity.
3) What is keystone species? Give its example.
4) Write on Protected area network for conservation of bio diversity.
5) Discuss on Rhino project.

B) Write Notes on (Any Two) **06**
1) Discuss the concept of richness and evenness diversity.
2) Write the informative note on diversity trends of different ecosystem.
3) Write a note on Ex-situ conservation.

Q.3 A) Attempt any two of the following question. **08**
1) Write the affecting factors of biodiversity.
2) Give the different IUCN categories in detail with examples.
3) Describe in detail biodiversity legislation for wild life conservation.

B) Answer the following (Any One) **06**
1) Give in detail the role of forest department in conservation.
2) Enlist and explain the causes of extinction of biodiversity.

Q.4 A) Answer the following (Any Two) **10**
1) Write in detail about project crocodile.
2) Define bio piracy, Write in detail about Red Data Book.
3) Give the major types of forest in India.

B) Answer the following (Any One) **04**
1) Write on Biodiversity Legislation in India.
2) Discuss the Genepools and Germplasm bank.

Q.5 Answer the following (Any two) **14**
a) Write in brief about coral reefs and mangroves.
b) Discuss the Species, Genetic and Pattern diversity.
c) Write on Extinct, Endangered and Vulnerable Species.

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Seat No.	

Set P

M.Sc. (Semester - II) (CBCS) Examination Oct/Nov-2019
Environmental Science
WATER AND WASTEWATER ENGINEERING

Day & Date: Wednesday, 06-11-2019 Max. Marks: 70
Time: 11:30 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat and labeled diagrams wherever necessary
4) Scientific calculator is allowed for calculations.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) Which is not waterborne disease?
   a) Dysentery b) Cholera
   c) Typhoid d) Malaria

2) Detention period of grit chamber is _____ adopted.
   a) 60 Seconds b) 60 min
   c) 2-4 hours d) 12 hours

3) Alum as a coagulant found to be most effective when pH range of water is between _____.
   a) 2-4 b) 4-6
   c) 6-8 d) 8-10

4) Which of the following retards the self purification of the stream?
   a) High Temp b) Oxygen Demand
   c) Sunlight d) None of the above

5) The dissolve oxygen level in natural water is _____.
   a) 1 mg/lit b) 10 mg/lit
   c) 100mg/lit d) 1000mg/lit

6) Primary treatment of sewage consists of removal of _____.
   a) Large suspended organic solids
   b) Oil and grease
   c) Sand and girt
   d) Floating material

7) Attached growth reactor is _____.
   a) Oxidation Pond b) Lagoons
   c) RBC d) All the above

8) The pH value of fresh sewage is usually _____.
   a) Equal to 7 b) More than 7
   c) Less than 7 d) Equal to zero

9) The maximum depth of sedimentation tanks, is kept _____.
   a) 3 m b) 3.5 m
   c) 4 m d) 4.5 m

10) If the depletion of oxygen is found to be 5 ppm after incubating a 2.5% solution of sewage sample for 5 days at 21^0C, B.O.D. of the sewage is _____.
   a) 50 ppm
   b) 100 ppm
   c) 150 ppm
   d) 200 ppm

11) For a continuous flow type of sedimentation tanks _____.
   a) Width of the tank is normally kept about 6 m
   b) Length of the tank is normally kept 4 to 5 times the width
   c) Maximum horizontal flow velocity is limited to 0.3 m/minute
   d) All the above

12) No treatment of the sewage is given if dilution factor is _____.
   a) Less than 150
   b) Between 150 to 200
   c) Between 200 to 300
   d) More than 500

13) For the COD test of sewage, organic matter is oxidised by $K_2Cr_2O_7$ in the presence of _____.
   a) H_2SO_4
   b) HNO_3
   c) HCl
   d) None of these

14) Pick up the correct statement from the following:
   a) Hydrogen sulphide gas in excess, may cause corrosion of concrete sewers
   b) 4 ppm of Dissolved Oxygen (D.O.) is ensured before discharging the treated sewage in river
   c) Solubility of oxygen in sewage is 95% of that of distilled water
   d) All the above

Q.2 A) Answer the following questions. (Any Four) **08**

1) What are major water requirements?
2) What is population forecasting?
3) How demographic progression is useful in the water and wastewater management?
4) What is supply and demand in water and wastewater management?
5) What is mean by BIS?

B) Write Notes. (Any Two) **06**

1) Difference between geometrical and arithmetical methods of population forecasting.
2) Define standards and its types? Give major BIS standards for drinking water.
3) What is the meaning of package and drinking water? Give their major WHO standards for drinking water.

Q.3 A) Answer the following questions. (Any Two) **08**

1) Write a note on comminutor and barminutors.
2) What is grit? Why it is necessary to provide grit chamber?
3) What is skimmer? How skimming tanks are useful in the wastewater treatment?

B) Answer the following questions. (Any One) **06**

1) What do you mean by sedimentation of wastewater? Describe in brief various types of settlings?
2) Describe in brief various unit operations for chemical clarification.

Q.4 A) Answer the following questions. (Any Two) **10**

1) What do you understand by a trickling filter? Explain in brief with the help of neat and sketch, the biological process involved in working of trickling filter.
2) What do you understand by a UASB? Explain in brief with the help of neat and sketch, the biological process involved in working of UASB?
3) How Continuous Stirring Tank (CST) is useful in wastewater treatment? Write in short process involved in working of CST.

B) Answer the following questions. (Any One) **04**

1) Explain in short Sludge Volume Index (SVI) and Food to Microorganism (F/ M) Ratio.
2) Write a note on Activated Sludge Process.

Q.5 Answer the following questions. (Any Two) **14**

a) What do you understand by PACT? Write in brief principles, designing aspect and applications of PACT.

b) Describe in detail principle, working and applications of Reverse Osmosis (RO) for wastewater treatment.

c) What is sludge dewatering and incineration? Explain in detail sludge dewatering and incineration of sludge.

SLR-JI-202

Seat No.	

Set P

M.Sc. (Semester - II) (CBCS) Examination Oct/Nov-2019
Environmental Science
REMOTE SENSING AND GIS IN ENVIRONMENTAL SCIENCE

Day & Date: Friday, 08-11-2019 Max. Marks: 70
Time: 11:30 AM To 02:00 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. **14**

1) What color does living vegetation appear as on false-color IR images?
   a) Green b) Red
   c) Blue d) Yellow

2) Full form for LIDAR is _____.
   a) Light Detection and Radar b) Light Detection and Ranging
   c) Light Diffraction and Ranging d) Light Diffraction and Radar

3) Which of the types of waves below has the longest wavelength?
   a) X rays b) Gamma Rays
   c) Radio Waves d) Near Infrared Waves

4) Which one of the following frequency regions is a part of sun's radiation?
   a) Infrared frequency range b) Ultraviolet frequency range
   c) Visible frequency range d) All of these

5) Full form for SAR is _____
   a) Synthetic aperture radar b) Synthetic aviation radar
   c) Systematic aperture radar d) Systematic aviation radar

6) What is remote sensing?
   a) Acquisition of information of an object which is not in physical or intimate contact
   b) System that captures, stores, analyzes and manages data that are linked to location
   c) Allowing graphical applications on a server, while displayed locally
   d) Electrical impedance measuring technique makes more accurate measurements

7) The instruments which provide electromagnetic radiation of specified wave length or a band of wave lengths to illuminate the earth surface, are called
   a) Sensors b) passive sensors
   c) Active sensors d) None of these

8) Full form for GPS is _____
   a) Global Positioning Science b) Global Positioning Satellite
   c) Global Positioning Sensor d) Global Positioning System

9) Geographic information systems _____
   a) Emphasize the use of the map as a means of information storage
   b) Limited to military and homeland defense applications
   c) Only display information from government data
   d) Prepares data from any sources to display combination of statistical variables

10) What kind of map shows a specific spatial distribution or category of data?
a) Reference map b) Thematic map
c) Location map d) General-purpose map

11) The terrain features which provides attributes, shape, size and texture of objects, is called.
a) Spectral variation b) Central variation
c) Temporal variation d) Spatial variation

12) Accuracy assessment is carried out for.
a) Measurement of truth, correctness and precision
b) Measurement of colors and Precision
c) Measurement of correctness and projection
d) Measurement of correlation and projection

13) The distance between each degree of latitude is approximately.
a) 65 km b) 100 km
c) 111 km d) 360 km

14) Among the following is not the part of image interpretation.
a) Color b) Projection
c) Shape d) Texture

Q.2 A) Answer the following questions.(Any Four) **08**
1) Explain any two principles of remote sensing.
2) What are objectives behind study of GIS?
3) What is raster resolution?
4) What is importance of spectral signature?
5) Explain advantages of topology in GIS.

B) Write Notes on (Any Two) **06**
1) Why is the electromagnetic spectrum important?
2) Explain any three applications of GIS in environmental science?
3) How electromagnetic radiations interact with atmosphere and earth.

Q.3 A) Answer the following questions.(Any Two) **08**
1) What are the components of electromagnetic radiations?
2) Write an account on evolution and growth of remote sensing in India.
3) What are the components of remote sensing?

B) Answer the following questions.(Any One) **06**
1) Discuss basic components of GIS?
2) Write are active and passive sensors used in RS?

Q.4 A) Answer the following questions.(Any Two) **10**
1) What are the advances in RS and GIS useful for protection of environment?
2) Explain different types of map projections with their characteristics?
3) What are the types of data used in GIS?

B) Answer the following questions.(Any One) **04**
1) Discuss different task performed in GIS
2) Explain the levels of measurement used in RS and GIS?

Q.5 Answer the following questions.(Any Two) **14**
a) Discuss various types of platforms used in remote sensing? Add a note on their advantages.
b) What are the components of topology?
c) Discuss various elements of image interpretation used in RS and GIS.

SLR-JI-204

Seat No.	

Set P

M.Sc. (Semester - III) (CBCS) Examination Oct/Nov-2019
Environmental Science
ENVIRONMENTAL POLLUTION

Day & Date: Monday, 18-11-2019 Max. Marks: 70
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat and labeled diagrams wherever necessary.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) Ozone hole formation is maximum over _____ region.
   a) India b) Antarctica
   c) Europe d) Africa

2) Which are the following indicators of air pollutants (SO_2 and NOX gases)?
   a) Ferns and Cycas
   b) Green algae and Aquatic liverworts
   c) Lichens and Mosses
   d) Neem tree and Eichornia

3) Noise intensity is measured by unit _____.
   a) Hertz b) Decibel
   c) Joule d) Sound

4) The lowest temperature in the atmosphere is _____.
   a) -90^oC b) -50^oC
   c) -100^oC d) -25^oC

5) Atomic Absorption Spectroscopy is used to analyze _____.
   a) Heavy metals b) Particle Size
   c) Dissolved gases d) Dissolved organic compounds

6) Which of the following contaminant is responsible for Minamata disease?
   a) Inorganic mercury b) Phenyl mercury
   c) Compound Mercury d) Methyl Mercury

7) Black lung disease is found in the people working in _____.
   a) Organic solvent Industry b) Coal Mine
   c) Electroplating Industry d) Paint Industry

8) According to BIS drinking standards maximum permissible limit of Nitrate (NO_3) in drinking water is _____.
   a) 50 ppm b) 45 ppm
   c) 55 ppm d) 65 ppm

9) In which of the following region NMR spectra are obtained?
   a) Micro wave b) Radio wave
   c) UV- visible d) Infrared

10) Blue baby syndrome is caused by _____.
   a) Sulphate b) Fluoride
   c) Nitrate d) Nitric acid

11) The following radioactive isotopes are formed by nuclear fission _____.
   a) Cr^{51}, Cu^{64} b) Zr^{95}, Mn^{54}
   c) Sr^{90},1^{131} d) All of the above

12) Ocean can provide an abundant supply of which nuclear fuel _____.
   a) Thorium b) Deuterium
   c) Tritium d) Plutonium

13) Ozone gas concentration is measured in unit _____
   a) uS/cm b) Dobson
   c) Decibel d) R^0C

14) Which is the following most common gas released from landfills process?
   a) CO b) CH_4
   c) H_2S d) CO_2

Q.2 A) Attempt any four of the following questions. **08**
1) Define air pollutants?
2) Explain Noise pollution problems.
3) Types of Soil in brief.
4) Describe soil salinity problems.
5) Ozone hole depletion.

B) Write Notes. (Any Two) **06**
1) Soil reclamation process.
2) BIS drinking water quality Standards.
3) 3 R Principle of solid waste management.

Q.3 A) Attempt any two of the following questions. **08**
1) Define radioactive pollution; explain the sources and impacts.
2) Describe the control measures of water pollution.
3) Disposal procedures of hospital waste in brief.

B) Attempt any one of the following questions. **06**
1) Write in account on air pollution problems and illustrate the control measures in brief.
2) What is photochemical smog? Describe its formation process in brief.

Q.4 A) Attempt any two of the following questions. **10**
1) Air quality standards
2) Classification of solid waste.
3) Mining pollution and environmental effects.

B) Attempt any one of the following questions. **04**
1) Noise pollution monitoring
2) Acid rain problems

Q.5 Attempt any two of the following questions. **14**
1) Write in brief about thermal pollution problems in India with suitable case study.
2) Write an account on vehicular pollution problems in India and suggest the remedial measures.
3) State the problems of Eutrophication in freshwater ecosystem in brief.

SLR-JI-205

Seat No.	

Set P

M.Sc. (Semester - III) (CBCS) Examination Oct/Nov-2019
Environmental Science
ENVIRONMENTAL BIOTECHNOLOGY

Day & Date: Tuesday, 05-11-2019 Max. Marks: 70
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.
3) Draw neat and labeled diagrams wherever necessary.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) The use of living organisms to degrade environmental pollutants is called _____.
   a) Bioremediation b) Nano remediation
   c) Micro remediation d) None of these

2) Which of the following microorganisms leach metals out of rock ores and can accumulate silver?
   a) *Pseudomonas aeruginosa* b) *Thiobacillus*
   c) *Pseudomonas putida* d) *Zoogloea ramigera*

3) The rate of degradation and microbes resistance to toxic pollutants remain better when the _____.
   a) mixed cell population is used
   b) individual cell is used
   c) mixed cell population along with metals is used
   d) None of these

4) Which of the bacteria is considered for biological leaching?
   a) T. thiooxidans b) T. ferrooxidans
   c) Ferrobacillus terrooxıdans d) all of these

5) *Bacillus thuringiensis* is used to control _____.
   a) Nematodes b) Fungal pest
   c) Bactrial pest d) Insect pest

6) Microorganisms remove metals by _____.
   a) Absorption and Complexation b) adsorption and precipitation
   c) Adsorption and volatilization d) All of these

7) The genetically-modified (GM) brinjal in India has been developed for _____.
   a) Enhancing shelf life b) Insect-resistance
   c) Drought-resistance d) Enhancing mineral content

8) Chlorella is widely used to remove _____.
   a) organic waste b) Hydrocarbons
   c) Heavy metals d) All of these

9) Which of the following microbe is widely used in the removal of industrial waste _____
   a) *Trichoderma species* b) *Aspergillus niger*
   c) *Pseudomonas putida* d) *All of these*

10) Bt cotton is a _____.
   a) a cotton variety obtained by crossing two different cotton plants
   b) a cotton variety brought from South America
   c) an insecticide sprayed on cotton plant
   d) a transgenic cotton variety

11) Agar agar, used in plant tissue culture is extracted from, _____.
   a) a fungi b) a bacteria
   c) an algae d) a virus

12) The extra chromosomal, self replicating, double stranded, closed, circular DNA molecules are called _____.
   a) Plasmids b) Phages
   c) Viruses d) Chloroplasts

13) Which of following microorganisms is used for production of Ethanol?
   a) Aspergillus b) Saccharomyces
   c) Bacillus d) None of these

14) The process of the concentration of a poison increasing as you move up the food web is known as _____.
   a) Chernomagnification b) Diffusion
   c) Bioaccumulation d) Biomagnification

Q.2 A) Answer the following questions. (Any Four) **08**
1) What are prokaryotes? Give an example.
2) What is RDT? Give an example.
3) Define Xenobiotic compounds. Explain with an example.
4) Define Bioremediation with an example.
5) What is Bioaugmentation explain with an example.

B) Write Notes. (Any Two) **06**
1) Biotrickling
2) Mycopesticide
3) Ex situ remediation of soil

Q.3 A) Answer the following questions. (Any Two) **08**
1) Explain the techniques used for bioremediation of air environment.
2) What are the impacts of spillage of petroleum products in environment? Also, add a note on biodegradation of petroleum products.
3) Explain the structure and functions of Prokaryotic Cells and Eukaryotic Cells.

B) Answer the following questions. (Any One) **06**
1) Explain the mechanism involved in degradation of aromatic compounds with considering different environmental factors.
2) Explain the environmental significance of algae in ecosystem.

Q.4 A) Answer the following questions. (Any Two) **10**
1) Explain the concept of transgenic plant and its significance.
2) Explain the term ‘Biofertilizer for bio control’.
3) What is the difference between Bioleaching and Biobenificiation?

B) Answer the following questions. (Any One) **04**
1) Explain Nature and function of micro-organisms in soil, water and air.
2) What do you mean by Biomethylation and Biomonitoring? Give its significance.

Q.5 Answer the following questions. (Any Two) **14**

a) What is Phytoremediation? Give details with suitable diagram.

b) How environmental factors affect the Enzyme activity? Explain.

c) Give details about nature and function of microorganisms in soil.

SLR-JI-206

Seat No.	

Set P

M.Sc. (Semester - III) (CBCS) Examination Oct/Nov-2019
Environmental Science
ENVIRONMENTAL STATISTICS

Day & Date: Thursday, 07-11-2019 Max. Marks: 70
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions carry equal marks.
2) Draw neat and labeled diagrams wherever necessary.
3) Scientific calculator is allowed for calculations.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) What type of data do you need for a chi-square test?
   a) Ordinal b) Categorical
   c) Level d) Scale

2) A hypothesis may be classified as: _____.
   a) Simple b) Composite
   c) Null d) All of the above

3) The specific statistical methods that can be used to summarize or describe a collection of data is called: _____.
   a) Descriptive statistics b) Inferential statistics
   c) Analytical statistics d) Advanced statistics

4) The degree of peakedness is called _____.
   a) Kurtosis b) Skewness
   c) Symmetry d) Dispersion

5) If the standard deviation of a population is 9, the population variance is __.
   a) 9 b) 81
   c) 21 d) 3

6) Any hypothesis which is tested for the purpose of rejection under the assumption that it is true is called: _____.
   a) Null hypothesis b) Extreme hypothesis
   c) Statistical hypothesis d) Complete hypothesis

7) By which other name is the chi-square goodness of fit test known?
   a) Two sample chi-square b) Three sample chi-square
   c) One-sample chi-square d) Directional chi-square

8) Which of the following values could not represent a correlation coefficient?
   a) r = 0.99 b) r =1.09
   c) r = -0.73 d) r = -1.0

9) The correlation between two variables is called as _____.
   a) Multiple correlation b) partial correlation
   c) Simple correlation d) Double correlation

10) Student's t-statistic is applicable in case of: _____.
   a) Equal number of samples b) Unequal number of samples
   c) Small samples d) All of the above

11) The sum of the deviations about the mean is always _____.
   a) Zero b) Range
   c) Total Standard deviation d) Positive

12) In case of open-ended classes, an appropriate measure of dispersion to be used is _____.
a) Range b) Quartile Deviation
c) Mean Deviation d) Standard Deviation

13) The mean of a distribution is 14 and the standard deviation is 5. What is the value of the coefficient of variation?
a) 60.4 b) 35.7
c) 48.7 d) 60.4

14) Which method of analysis does not classify variables as dependent or independent?
a) Regression analysis b) Discriminant analysis
c) Analysis of variance d) Cluster analysis

Q.2 A) Answer the following questions. (Any Four) **08**

1) What is addition rule of probability?
2) What is discriminant component analysis?
3) Differentiate between correlation and regression.
4) Which are the methods used to collect primary data?
5) What is cluster analysis?

B) Write Notes. (Any Two) **06**

1) Explain the importance of various statistical techniques in environmental sciences?
2) Explain any three data presentation techniques used in statistics.
3) What is multivariate data analysis? Explain its applications.

Q.3 A) Answer the followings (Any Two) **08**

1) Discuss importance of principle component analysis in environmental studies.
2) Add a note on regression analysis and its applications.
3) A person is known to hit the target in 4 out of 5 shots. Whereas another person is known to hit the target in 3 out of 4 shots. Find the probability of the target being hit at all when they both try.

B) Answer the following question. (Any One) **06**

1) What are various measures of central tendency? Discuss their merits and demerits.
2) What are characteristics of Chi-Square test?
A cross is made between guinea pigs with the black male and the grey female; the off springs obtained were 50 black and 70 grey. Calculate the χ^2 and interpret your test.

Q.4 A) Answer the following question. (Any Two) **10**

1) Explain scatter diagram method for studying correlation.
2) Which are the basic concepts of experimental design?
3) Add a note on different types of clusters.

B) Answer the following questions. (Any One) **04**

1) What are applications of probability?
2) Calculate the geometric mean of the following data.

Number of Dwarf Plants	8	12	15	21	35
Total Number of Plants	201	206	310	390	400

Q.5 Answer the following questions. (Any Two) **14**

1) What is null hypothesis? Discuss type I and type II error in testing of hypothesis

2) Calculate the value of median from the data recorded on the number of grains per ear head on 300 wheat earheads

Number of grains per earhead	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency	2	27	52	118	57	27	13	4

3) Data on waxy endospermic plants were recorded in maize. Calculate standard deviation for from the following data

Waxy Endospermic Plants	7	8	9	10	11	12
Number of Plants	13	13	18	17	15	14

SLR-JI-208

Seat No.	

Set P

M.Sc. (Semester - IV) (CBCS) Examination Oct/Nov-2019
Environmental Science
ENVIRONMENTAL POLICY, ACTS, LAWS AND ENVIRONMENTAL MANAGEMENT SYSTEM

Day & Date: Monday, 04-11-2019 Max. Marks: 70
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) UNEP stands for _____.
   a) United Nations Environment Programme
   b) Union Nations Environment Programme
   c) United Nations Environment Protection
   d) None of the above

2) Litrate women can help in: _____.
   a) Reducing infant mortality rate
   b) Reducing population growth
   c) Promoting female children education
   d) All of the above

3) The first of the major environmental protection act to be promulgated in India was: _____.
   a) Water Act b) Air Act
   c) Environmental Act d) Noise Pollution Rule

4) Montreal protocol was developed for _____.
   a) ozone layer protection b) soil conservation
   c) water conservation d) air pollution

5) The Forest (Conservation) Act was enacted in the year: _____.
   a) 1986 b) 1974
   c) 1980 d) 1972

6) Red data book is published by _____.
   a) IUCN b) WWF
   c) BNHS d) WHO

7) Ministry of Environment and forest was established in _____.
   a) 1980 b) 1986
   c) 1972 d) 1988

8) World wildlife week is observed during _____.
   a) First week of October b) Last week of October
   c) Third week of October d) First week of September

9) CBD stands for.
   a) Convention on biological diversity
   b) Conservation of biological diversity
   c) Conference on biological development
   d) Convention on biomaterial development

10) World Forest day is celebrated on _____.
a) 21st March b) 5th June
c) 1st Dec d) 7th June

11) Wild life protection act was formulated during the period of _____.
a) Mrs. Indira Gandhi b) Lal Bahadur Shasthri
c) Rajiv Gandhi d) Morarji Desai

12) Which year was declared as the 'Water Year' by Indian Government?
a) 2010 b) 2004
c) 2007 d) 2000

13) Where was the Stockholm conference on Human Environment held?
a) Sweden b) Austria
c) India d) Greece

14) Environmental Protection Act was introduced in the year _____.
a) 1986 b) 1988
c) 1972 d) 1989

Q.2 A) Answer the following questions. (Any Four) **08**
1) What is IUCN?
2) What is Biodiversity?
3) What is Environmental Monitoring?
4) What is conservation?
5) Define population explosion?

B) Write Notes on (Any Two) **06**
1) Comment on the Rio conference
2) Role of WWF in conservation
3) Global warming

Q.3 A) Answer the following questions. (Any Two) **08**
1) Comment on climate change conference?
2) Comment on GIS.
3) Comment on Constitutional provision in India for conservation of Environment.

B) Answer the following questions. (Any One) **06**
1) Comment on the wildlife protection Act, 1972.
2) What is remote sensing? Explain its application in environmental studies.

Q.4 A) Answer the following questions. (Any Two) **10**
1) Discuss the national forest policy, 1989
2) Discuss the Kyoto protocol and its environmental significance.
3) Comment on UNEP and its role in conservation of natural resources.

B) Answer the following questions. (Any One) **04**
1) Comment on Role of CPCB and SPCB.
2) Explain the environmental ethics with suitable example.

Q.5 Answer the following questions. (Any Two) **14**
a) Explain the Water (prevention and control of pollution) Act, 1974 and give its Environmental significance.
b) Explain in details the national and international organizations engaged in Environmental policy.
c) What is CBD? Explain details CBD and its role in conservation of Biodiversity.

SLR-JI-209

Seat No.	

Set P

M.Sc. (Semester - IV) (CBCS) Examination Oct/Nov-2019
Environmental Science
ENVIRONMENTAL TOXICOLOGY AND SAFETY

Day & Date: Wednesday, 06-11-2019 Max. Marks: 70
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Draw neat and labeled diagrams wherever necessary.
3) Scientific calculator is allowed for calculations.

Q.1 Fill in the blanks by choosing correct alternatives given below. 14

1) Full form of EMAS is _____.
   a) Ecological and Audit Scheme
   b) Environment and Audit Scheme
   c) Eco-Management and Audit System
   d) Eco-Management and Audit Scheme

2) _____ refers to the plans, preparations and actions taken to avoid or stop an accident before it happens.
   a) Accident Management b) Accident Prediction
   c) Accident Prevention d) Accident History

3) The blood alcohol content (BAC) can be determined by a breath test because.
   a) About 5% of alcohol leaves the body unchanged in the breath, perspiration, and urine
   b) BAC cannot be determined by a breath test because everyone matabolizes alcohol differently
   c) There is always a tiny bit of blood in the saliva
   d) BAC cannot be determined by a breath test

4) Elapidaes are.
   a) Vasculotoxic b) Neurotoxic
   c) Musculotoxic d) Nontoxic

5) Ophotoxemia refers to.
   a) Organophosphorous poisoning b) Heavy metal poisoning
   c) Scorpion venom poisoning d) Snake venom poisoning

6) Which of the following is TRUE regarding water contamination and treatment?
   a) Only cold water is safe to drink
   b) Correct treatment of water will eliminate all contaminants
   c) Many contaminants do not affect the taste or appearance of water
   d) Simply boiling water will make it safe

7) Blue-baby syndrome is due to an excess of _____ in drinking water.
   a) Lead b) Calcium
   c) Radon d) Nitrate

8) The causative agent of mad-cow disease is a.
   a) Worm b) Prion
   c) Bacterium d) Virus

9) A drug that induces alterations in perception and mood (without either arousing or inhibiting brain activity) is known as:
   a) Depressant b) Stimulant
   c) Hallucinogen d) Cutting Agent

10) Full form of DGFASLI is _____.
   a) Directorate General, Factory Administration and Labour Institutions
   b) Directorate Genesis, Factory Advice and Labour Institutions
   c) Direct Genesis, Factory Advice and Labour Institutes
   d) Directorate General, Factory Advice and Labour Institutes

11) Which environmental health scientist would determine ways to prevent and reduce exposure to second hand smoke?
   a) Toxicologist b) Epidemiologist
   c) Industrial hygienist d) pharmacologist

12) _____ is a chronic lung disease caused by inhaling asbestos fibers
   a) Asbestosis b) Asbetosis
   c) Asbecosis d) Asbeoites

13) Factors influencing home environment health risks include
   a) Furnishings, finishes and household products
   b) Climate
   c) Resident lifestyles
   d) None of the above

14) Poor home maintenance often contributes to which health hazard?
   a) Formaldehyde b) Mold
   c) Radon d) All of the above

Q.2 A) Answer the following. (Any Four) **08**

1) What are environmental toxicants?
2) What are hallucinogens?
3) Explain the important aspects covered in community health.
4) What is meant by detoxification?
5) What is importance of safety policy for industries?

B) Write Notes. (Any Two) **06**

1) What are principles of accident management?
2) What are the basic principles of environmental health?
3) Write an account on phytotoxins.

Q.3 A) Answer the following. (Any Two) **08**

1) What are the toxic responses shown by human body for heavy metal toxicity?
2) Write an account on tolerance levels show by microorganism of extreme environment.
3) Discuss the procedure to evaluate LC50 for fish toxicity.

B) Answer the following. (Any One) **06**

1) Discuss the importance of safety policy for industries with suitable examples.
2) What are the principles of accident prevention?

Q.4 A) Answer the following. (Any Two) **10**

1) Explain the important provisions of hazardous waste management rules.
2) What are the various personal protective equipments used in construction industry?
3) Which hazards are associated with chemical industry?

B) Answer the following. (Any One) **04**

1) What are the mutagens responsible for causing toxicity in organisms?
2) Discuss the role of management in industrial safety.

Q.5 Answer the following. (Any two) **14**

1) What are various detoxification mechanisms shown by organisms in an ecosystem?

2) Write an account on adaptations and tolerance levels shown by various organism.

3) What is meant by occupation health? Which areas are covered under it?

SLR-JI-210

Seat No.	

Set P

M.Sc. (Semester - IV) (CBCS) Examination Oct/Nov-2019
Environmental Science
ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL AUDIT

Day & Date: Friday, 08-11-2019 Max. Marks: 70
Time: 03:00 PM To 05:30 PM

Instructions: 1) All questions are compulsory.
2) Figures to the right indicate full marks.

Q.1 Fill in the blanks by choosing correct alternatives given below. **14**

1) The projects of which of the following are being assessed for Environmental Impact Assessment study?
   a) Irrigation and Power b) Administration
   c) Public investment d) All of these

s 2) Which is not an objective of ELA?
   a) Recycling and reduction of waste
   b) Risk analysis and disaster management
   c) Assessment of International funding
   d) All of the above

3) The areas up to the 100 meters around the premises such as hospitals, educational institutions and courts are_____.
   a) Silence Zones b) Atrophic Zones
   c) EMP Zones d) Irrigation Zones

4) Environmental auditing helps in pollution control, improves production, safety and health and conservation of natural resources by way of _____.
   a) ensuring waste prevention and reduction
   b) assessing compliance with regulatory environment
   c) placing environmental information to the public
   d) All of the above

5) Which is not correctly matched?
   a) ISO- International Organization of Standards
   b) EMS - Environmental Management System
   c) EIA - Environmental Impact Assessment
   d) WTO - Whole Trade Output

6) The agency which is not certifying the ISO is _____.
   a) Bureau of Indian Standards (BIS), Delhi
   b) Quality Assurance Services (QAS)
   c) Central Pollution Control Board (CPCB), Delhi
   d) All Indian Inset of Local Self Government, Mumbai

7) Which EMS model is well known?
   a) ACC b) ISO 14001
   c) EMAS d) NABET

8) What activity does EMS covers _____.
   a) Conduct a preliminary environment review
   b) Establish environment objectives
   c) Establish an Environment policy
   d) All of the above

9) What is most environmental friendly action for mining company after extraction of mineral?
   a) Fill in soil and replace top soil
   b) No refilling hole
   c) Fill water in hole
   d) Fill waste in hole

10) Eco-tourism should lead _____.
   a) Environmental Tourism
   b) Sustainable Tourism
   c) Sustainability
   d) Sustainable use of resources

11) The impacts caused by construction of dams and reservoirs include _____.
   a) soil erosion
   b) loss of vegetation cover
   c) changes in microclimate
   d) All of the above

12) All major project plans should be examined to ensure _____.
   a) quality of environment
   b) public health and safety
   c) both of these
   d) None of these

13) What activity does EMS cover?
   a) Conduct a preliminary environment review
   b) Establish environment objectives
   c) Establish an Environment policy
   d) All of the above

14) PAN stands for _____.
   a) Peroxy Acetyl Nitrate
   b) Peroxy Acyl Nitrite
   c) Pyridin Aceto-Nitric
   d) Peroxy Aceto Nitrile

Q.2 A) Answer the following questions. (Any Four) **08**

1) Define EIS and EIA.
2) Environmental Audit.
3) National Environmental Policy Act (NEPA, 1969).
4) ELA guidelines-1994.
5) Define Environmental Inventory.

B) Answer the following questions. (Any Two) **06**

1) Scope and objectives of EIA.
2) Explain core values and key guiding principles for EIA.
3) What is the role of NABET and give functional areas and accreditation?

Q.3 A) Answer the following questions. (Any One) **08**

1) Define impact. Explain concept and types of impacts.
2) What is impact identification? Give the methods for impact identification?
3) Explain in brief advantages and disadvantages of EIA.

B) Answer the following questions. (Any One) **06**

1) Discuss in detail use of network method in EIA.
2) What is overlay maps? Give its advantages and disadvantages.

Q.4 A) Answer the following questions. (Any Two) **10**

1) Define data. Discuss in detail baseline data required for EIA.
2) What are impacts? Explain in short prediction and evaluation of impacts in EIA.
3) Discuss in detail public participation in EIA. About environmental impacts.

B) Answer the following questions. (Any One) **04**

1) Explain how to prepare and write ELA for dams.
2) Explain how to prepare and write ELA for mining.

Q.5 Answer the following questions. (Any Two) **14**

a) What is Environmental Audit? Write in short, scope and objectives of Environmental Audit.

b) Discuss the importance of Environmental Management System (EMS).

c) What is ISO? Give in brief role of Environmental Audit in Sustainable development.