Total No. of Questions : 7]

SEAT No. : ____

PC-4283

[Total No. of Pages : 2

[6343] - 1001
M.Sc.
ENVIRONMENTAL SCIENCE
ENV 501 MJ: Fundamentals of Environmental Biology and Biodiversity
(2023 Pattern) (NEP) (Semester - I)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Q.1 is compulsory.***
2) ***Answer any 5 questions from Q.2 to Q.7.***

Q1) **Answer any five of the following** **[10]**

a) Define eco-system and classify the abiotic factors of an ecosystem.

b) What is carrying capacity?

c) Explain the community interaction of mutualism

d) Write in brief about environmental factors affecting micro-organisms.

e) Write about any two values of biodiversity.

f) What is altruism?

Q2) a) Discuss the ecological processes of biosphere and explain its role in life support system. **[7]**

b) Write in detail about how environmental factors influences organisms\population. **[5]**

Q3) a) Discuss the major types of behavior and explain the use of tools by animals **[7]**

b) Discuss the important features of freshwater (pond) ecosystem and adaptations of plants to this ecosystem. **[5]**

Q4) a) Draw a diagram of carbon cycle and explain the same in details. **[7]**

b) Differentiate between immigration, emigration and migration. Elaborate migratory behavior, its causes and patterns. **[5]**

Q5) a) What are the climatic conditions of grassland biome? How animals have adopted to it? **[7]**

b) Discuss the role of micro-organisms in bio-remediation process. **[5]**

Q6) a) Discuss the major threats to biodiversity and strategies to conserve bio-resources. **[7]**

b) Elaborate the process of formation of a new eco-system and write about ecotone & edge-effect. **[5]**

Q7) Write a short note on any two of the following (6 marks each) **[12]**

a) Food and water security

b) Bioindicators and their role

c) Mangrove eco-system

Total No. of Questions : 7]

SEAT No. :

PC-4284

[Total No. of Pages : 2

[6343] - 1002
M.Sc.
ENVIRONMENTAL SCIENCE
ENV 502 MJ: Fundamentals of Environmental Physics and Chemistry
(NEP) (2023 Pattern) (Semester - I)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Q. 1 is compulsory.***
2) ***Answer any 5 questions from Q. 2 to Q. 7.***

Q1) **Answer any five of the following** **[10]**

a) Define sedimentation and coagulation.

b) What is Adiabatic lapse rate?

c) Give any two effects of radiation on living tissue.

d) Differentiate between reversible & irreversible reaction.

e) What is X-ray diffraction?

f) What are the applications of NAA? (Neutron Activation Analysis)

Q2) a) Write principle, construction, working & applications of AAS. **[7]**

b) Explain in detail about carbon cycle & its environmental significance.**[5]**

Q3) a) Differentiate between nuclear fission & fusion, What are the applications of nuclear energy? **[7]**

b) Explain in detail about throttling process. **[5]**

Q4) a) Explain in detail about the properties of fluid. **[7]**

b) What do you mean by polarization of light? What are its causes? **[5]**

Q5) a) Explain in detail with neat labelled diagram of ICPAES **[7]**

b) Write a note on geometrical optics. **[5]**

Q6) a) Explain in detail about solubility of gases in water. **[7]**

b) Differentiate between Reflection & Refraction. **[5]**

Q7) a) Biological oxygen demand **[12]**

b) Phase transformation

c) Redox Potential

Total No. of Questions : 5]

SEAT No. : ____

PC- 4285

[Total No. of Pages : 2

[6343]-1003

M.Sc.

ENVIRONMENTAL SCIENCES

ENV - 503 MJ : Environmental Statistics

(2023 Pattern) (Semester - I) (NEP)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any three questions from Q.2 to Q.5.***

Q1) Write down the correct option for the following : (any 5) **[5 × 1 = 5]**

a) If coefficient of correlation $r = 0.8$, then coefficient of determination is _____.

i) 0.8 ii) 0.2

iii) 0.4 iv) 0.64

b) The percentage data lies between the first quartile (Q_1) and third quartile (u_3) is equal to

i) 25% ii) 75%

iii) 50% iv) None of these

c) Coefficient of variation Series A = 4.5%, B = 6.8%, C = 8.6% and Series D = 5.5%, then _____ series is said to be more consistent.

i) Series A ii) Series B

iii) Series C iv) Series D

d) The sum of absolute derivation of given set of observation is minimum when taken from _____.

i) Median ii) Mode

iii) Range iv) Mean

e) If two regression coefficients b_{yx} and b_{xy} are equal then correlation coefficient r is

i) $r > b_{yx}$ ii) $r > b_{xy}$

iii) $r = b_{yx} = b_{xy}$ iv) $r = 0.50$

P.T.O.

f) For set of 10 items $\sum X = 630, \sum X^2 = 39764$ then S.D. will be

i) 2.62 ii) 2.70

iii) 2.50 iv) 2.72

Q2) a) Draw a sketch of normal curve and give important properties of normal distribution. **[6]**

b) Represent the following information by using Pie chart % break-up of the cost of construction of house in Pune. **[4]**

Labour	Bricks	Cement	Steel	Timber	Supervision
25%	15%	20%	15%	10%	15%

Q3) a) The mean and standard deviation of normal variate are 40 and 12 respectively. Find first and third quartiles of the distribution. Also find Q. D and M.D. **[6]**

b) What is measure of location? State different measures of location and state property of mean. **[4]**

Q4) a) Define multiple correlation and partial correlation. If X_1 is dependent variable and X_2 & X_3 are independent variables then write down $r_{12.3}$ and $R_{1.23}$. **[4]**

b) From the data given mean height = 50.07 cms mean age = 9.98 years, S.D. of height = 5.26 cms S.D of age = 2.60 years and r = 0.89, where r is correlation coefficient. Using regression lines find the value of age when height is 40 cms and the height when age is 12 years. **[6]**

Q5) Write short notes on any two of the following : **[10]**

a) Time series analysis

b) Control charts for the variables

c) Measures of dispersion

▽▽▽▽

Total No. of Questions : 5]

SEAT No. :

PC4286

[Total No. of Pages : 1

[6343]-1004

First Year M.Sc.

ENVIRONMENTAL SCIENCE

ENV - 505 MJ : Fundamentals of Atmospheric Sciences

(2023 Credit Pattern) (Semester - I)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any Three from Q.2 to Q.5.***
3) ***Questions 2 to 5 carry equal marks.***

Q1) Answer any five of the following. **[5]**

a) What is Evolution?

b) Define Biosphere.

c) What is LaNina?

d) What is insolation?

e) What is relative humidity?

f) What is precipitation?

Q2) a) Describe Dry & moist Adiabatic Lapserate. **[6]**

b) Explain exploitation of coal resource. **[4]**

Q3) a) Explain Earth's Radiation Budget. **[6]**

b) Explain Atmospheric Stability. **[4]**

Q4) a) Write a note on oceanic environment. **[6]**

b) Descrbie wind Belts. **[4]**

Q5) Write short notes on any two of the following. **[10]**

a) Classification of Air masses.

b) Indian mansoon.

c) Importance of wind.

■■■■

Total No. of Questions : 5]

SEAT No. : ____

PC-4287

[Total No. of Pages : 2

[6343]-1005

M.Sc. (Environmental Sciences)

ENV506 MJ: FUNDAMENTALS OF GEOSCIENCES

(2023 Pattern) (Semester - I)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any Three questions from Q.2 to Q.5.***
3) ***Q.2 to Q.5 carry equal marks.***

Q1) **Answer any Five of the following:** **[5 × 1 = 5]**

a) Draw a diagram of vertical distribution of ground water.

b) Give names of three types of volcanoes.

c) What are springs?

d) Define desertification.

e) How are aeolian landform formed?

Q2) a) Discuss in detail Earth and its sphers. **[6]**

b) Write a note on mountain building. **[4]**

Q3) a) Discuss in detail Drainage basins. **[6]**

b) Write a note on vertical distribution of ground water. **[4]**

Q4) a) Explain land capability classification. **[6]**

b) Discuss in detail soil profile. **[4]**

P.T.O.

Q5) **Write short notes on any two of the following:** **[10]**

a) Rock cycle

b) Sea floor spreading

c) Aquifers

Total No. of Questions : 5]

SEAT No. : ____

PC-4288

[Total No. of Pages : 2

[6343] - 1006
M.Sc.
ENVIRONMENTAL SCIENCE
ENV 507 MJ: Sustainable Development
(2023 Pattern) (Semester - I)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q. 1 is compulsory.***
2) ***Answer any 3 questions from Q. 2 to Q. 5.***

Q1) **Answer any five of the following** **[5]**

a) Define sustainability

b) What is Aquatic ecosystem?

c) What is mean by sustainable cities?

d) What is Air pollution?

e) What food security?

f) Write any two examples of renewable resources.

Q2) a) What are the impacts of development on environment? **[6]**

b) Need of sustainable Development. **[4]**

P.T.O.

Q3) a) Why to protect our planet? Describe in detail. **[6]**

b) What are current Socio-economic challenges in sustainable development. **[4]**

Q4) a) Explain UN's outlook of sustainable development. **[6]**

b) Explain Biosphere **[4]**

Q5) **Write short notes on any two of the following** **[10]**

a) Factors influencing on sustainability of ecosystem.

b) Current challenges in rural sustainable development.

c) Village economy.

Total No. of Questions : 5]

SEAT No. :

PC4289

[Total No. of Pages :1

[6343]-1007

M.Sc.-I

ENVIRONMENTAL SCIENCE

ENV - 510 RM : Research Methodology

(Credit 2023 Pattern) (Semester- I)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any three questions from Q2 to Q5.***
3) ***Q2 to Q5 carry equal marks.***

Q1) Answer any five of the following: **[5]**

a) What is difference between copy right & Trademark?
b) What is Transdisciplinarry method of research?
c) What are the rules of Chicago citation?
d) What do you mean by integrated water sampling?
e) Why literature review is important in research?
f) What is the use ithenticate software?

Q2) a) What is research problem? Give its types, characteristics and examples. **[6]**
b) Explain with example applied & fundamental research. **[4]**

Q3) a) Give detailed account on sources of Review of literature. **[6]**
b) Explain difference between descriptive vs experimental Research design. **[4]**

Q4) a) Explain in detail componants of scientific poster presentation. **[6]**
b) Give detailed account on method used in soil sampling & processing. **[4]**

Q5) Write short note on any Two of the following. **[10]**

a) Qualitative Research
b) Monodisciplinary Research
c) Plagiarism

Total No. of Questions : 5]

SEAT No. : ____

PC-4290

[Total No. of Pages : 2

[6343] - 1008
M.Sc.
ENVIRONMENTAL SCIENCE
ENV 508 MJ: Environmental Education
(NEP) (2023 Pattern) (Semester - I)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q. 1 is compulsory.***
2) ***Answer any 3questions from Q. 2 to Q. 5.***

Q1) **Answer any five of the following** **[5]**

a) What is the Agenda of Environmental Awareness?

b) Give full form of CEPA.

c) Define ESD?

d) Define action learning?

e) What is Empathy?

f) What do you mean by Environmental coservation?

Q2) **Answer the following :**

a) Explain in detail Guiding principles of Environmental education? **[6]**

b) What is the purpose of Agenda 21? **[4]**

Q3) **Answer the following :**

a) What are the specific environmental issues addressed by CEPA? **[6]**

b) What are the extra - curricular approaches in Environmental education? **[4]**

Q2) **Answer the following :**

a) What is the role of the educator in Education for Sustainable Development (ESD)? **[6]**

b) Why EE and ESD important for achieving sustainable development? **[4]**

Q5) **Write short notes on any two of the follwing :** **[10]**

a) Teaching - learning process for ESD **[5]**

b) Deliberative and participatory techniques. **[5]**

c) Waste management **[5]**

Total No. of Questions : 7]

SEAT No. :

PC-4291

[Total No. of Pages : 2

[6343]-2001
M.Sc.
ENVIRONMENTAL SCIENCE
ENV 551 MJ: Water & Soil Pollution: Management & Mitigation
(NEP 2023 Pattern) (Semester - II)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates :

1) ***Question one is compulsory.***
2) ***Solve any five Question from Q.2 to Q.7.***
3) ***Q.2 to Q.7 carry equal marks.***

Q1) Answer any five of the following. **[10]**

a) What is standerd permissible limit of Nitrate?

b) What are different types of ground water zones?

c) Give effluent standerd of oil and Grace.

d) What is the main purpose of ballast water?

e) Give any Two impacts of fly ash dumping.

f) Enlist any Two imputs of Land minig.

Q2) a) Describe the organic and inorganic pollutants that causes pollution in water. **[7]**

b) Write a note on characteristics of wastewater. **[5]**

Q3) a) Discuss in detail permeable reactive barriers in depth. **[7]**

b) Describe the detrimental effects of seawater on costal aquifers. **[5]**

OR

P.T.O.

Q4) a) Explain the components & characteristics of biosurfact out. **[7]**

b) Describe the tactics used to stop land based causes of marine pollution. **[5]**

Q5) a) Explain the physical, chemical & biological interactions of waste with soil. Give examples of each. **[7]**

b) Discuss negative consequences of iron ore extraction. How it relats with tailing management? **[5]**

Q6) a) Explain in detail tradional method of Freshwater remediation? Give its advantages & disadvantages. **[7]**

b) Discuss any one case study related to land restoration. **[5]**

Q7) Write a short note on any two of the following. **[12]**

a) Aquifer yield prediction.

b) Dispersant.

c) Themal power station solid waste.

♦ ♦ ♦

Total No. of Questions : 7]

SEAT No. :

PC4292

[Total No. of Pages : 2

[6343]-2002

First Year M.Sc.

ENVIRONMENTAL SCIENCE

ENV-552-MJ : Air, Noise & Radiation : Pollution Management & Mitigation

(Credit 2023 Pattern) (Semester - II)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any 5 questions from Q2 to Q7.***

Q 1) Answer any five of the following : **[10]**

a) What are polar stratospheric clouds?

b) Define radioactivity and write about the different units used for measuring it.

c) Give the type based classification of air pollutants.

d) Give the effects of ionizing radiation.

e) What is dB meter?

f) Define acid rain.

Q2) a) Write about the formation and destruction of stratospheric ozone? Explain the significance of ozone layer and its depletion. **[7]**

b) What are the factors affecting dispersal of air pollutants? **[5]**

Q3) a) Explain the principle, working and components of an electrostatic precipitation. **[7]**

b) How does fuel selection help in controlling air pollution. **[5]**

P.T.O.

Q4) a) Define noise. Enlist the strategies for noise control. Explain how the reclever can be protected. **[7]**

b) How does noise affect communication? Explain the psychological effects of noise. **[5]**

Q5) a) Define air pollution and write about its adverse effects on human health & vegetation. **[7]**

b) Explain the working and significance of personal dosimeters. **[5]**

Q6) a) What is the significance of respirable particulate matter? Add a note on fine dust sampler. **[7]**

b) Write a note on Chernobyl accident. **[5]**

Q7) Write short notes on any two : **[12]**

a) Methods for cleaning fabric filters.

b) GM counter.

c) Incinerations for air pollution control.

Total No. of Questions : 5]

SEAT No. :

PC- 4293

[Total No. of Pages : 2

[6343]-2003
M.Sc.
ENVIRONMENTAL SCIENCES
ENV - 553 MJ : Environmental Law
(2023 Pattern) (NEP) (Semester - II)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q. 1 is compulsory.***
2) ***Answer any three questions from Q.2 to Q.5.***

Q1) Answer any Five of the following. **[5]**

a) What is CITES?

b) CRZ notification is declared under which act and when?

c) Give two functions of Tiger Conservation Authority.

d) Give two functions of CPCB.

e) What is MARPOL?

f) State the duty mentioned in Article 51A in relation to environment.

Q2) a) Discuss in detail provisions of Water Act. **[6]**

b) Write in detail importance and difference between law and policy. **[4]**

Q3) a) Discuss in detail National Biodiversity Authority. **[6]**

b) Discuss principles of National Environment Policy. **[4]**

P.T.O.

Q4) a) Discuss the salient features of Environment Protection Act 1986. **[6]**

b) Explain the role of constitution in environment protection. **[4]**

Q5) Write short notes on any two of the following. **[10]**

a) National forest policy

b) Environmental Ethics

c) NGT

▽▽▽▽

Total No. of Questions : 5]

SEAT No. : ____

PC4294

[Total No. of Pages : 2

[6343]-2004

M.Sc. - I

ENVIRONMENTAL SCIENCE

ENV - 560 MJ : Water and Waste Water Technology - I (Basic)

(Credit 2023 Pattern) (Semester - II)

Time :2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any 3 questions from Q2 to Q5.***

Q1) Answer any five of the following. **[5×1=5]**

a) What is the purpose of water softening in water treatment.

b) Name one method used for the removal of iron from water.

c) What does WHO stand for in the context of water standards.

d) Mention one advance water treatment method other than reverse osmosis.

e) List out two quality parameters for water analysis.

f) What is disinfection in water treatment plant.

Q2) a) Discuss the factors affecting the rate of water demand in urban areas. **[6]**

b) Explain the need of Aeration in water treatment and what are the various types of aeration. **[4]**

Q3) a) Explain the process of ultrafiltration with appropriate diagram. **[6]**

b) Explain the process of nitrification and benitrification. **[4]**

P.T.O.

Q4) a) Explain the process of reverse osmosis with appropriate diagram. **[6]**

b) Explain the process of rapid sandfilter with appropriate diagram. **[4]**

Q5) Write short notes on any two of the following. **[10]**

a) Outline the steps involved in the collection and pumping stage of water treatment.

b) Discuss the concept and application of color and odor removal using activated carbon in water treatment.

c) Explain the significance of water quality standards in industrial application.

Total No. of Questions : 5]

SEAT No. : ____

PC-4295

[Total No. of Pages : 2

[6343]-2005

M.Sc.

ENVIRONMENTAL SCIENCES

ENV561 MJ: Water & Wastewater Technology - II (Advanced)

(2023 Pattern)(NEP)(Semester - II)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any Three from Q.2 to Q.5.***

Q1) **Answer Any Five of the following:** **[5 × 1 = 5]**

a) Draw a sketch of stabilization pond with appropriate title.

b) Write down effect of biological water pollutent on human health.

c) Explain the effects of suspended solids on water bodies.

d) Brief role of microorganism in derobic treatment.

e) Write a note on hybrid type anaerobic digester.

f) What is attachment and detachment process in trickling filter?

Q2) a) What is anaerobic digestion? Draw a sketch of CSTR digester with title. **[6]**

b) Importance of chlorination in waste water treatment plant. **[4]**

Q3) a) Draw a flow diagram of sewage treatment plant along with title. **[6]**

b) Write a note on Septic tank & Soak pit. **[4]**

P.T.O.

Q4) a) What are the importance of preliminary & primary treatment in waste water? Explain a function of screen chamber. **[6]**

b) Give the importance of equalization & neutralization tank in industrial waste water treatment plant. **[4]**

Q5) **Write short notes on any two of the following:** **[10]**

a) MBBR

b) MBR

c) RBC

Total No. of Questions : 5]

SEAT No. : ____

PC-4296

[Total No. of Pages : 2

[6343]-2006

M.Sc.

(Environmental Science)

ENV562 MJ: ENVIRONMENTAL MANAGEMENT

(NEP) (2023 Pattern) (Semester - II)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any Three from Q.2 to Q.5.***
3) ***Q.2 to Q.5 carry equal marks.***

Q1) **Answer Any Five of the following:** **[5 × 1 = 5]**

a) What is environment management?

b) What is "PLAN" in EMS?

c) Define Life cycle analysis.

d) Define linear economy.

e) List two component of EMS.

f) Name one principle of circular economy.

Q2) a) Describe role of environmental management in substainable development. **[6]**

b) Explain scope of EMS. **[4]**

Q3) a) What are principles of environmental design. **[6]**

b) Explain scope of LCA. **[4]**

P.T.O.

Q4) a) Explain economic values of circular economy. **[6]**

b) Describe Environmental Benefits of EMS . **[4]**

Q5) **Write short note on any two of the following:** **[10]**

a) Tools of environmental management.

b) Gate to Gate variant of LCA.

c) Environmenatl design for Buildings.

Total No. of Questions : 5]

SEAT No. : ____

PC-4297

[Total No. of Pages : 2

[6343] - 2007
M.Sc.
ENVIRONMENTAL SCIENCE
ENV 563 MJ: International Environmental Law
(NEP) (2023 Pattern) (Semester - II)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q. 1 is compulsory.***
2) ***Answer any three from Q. 2 to Q. 5.***
3) ***Question 2 to 5 carry equal marks.***

Q1) **Answer any five of the following** **[5]**

a) Rio conference was held at which city & country?

b) Define prevention

c) What is polluters liability?

d) State any two sustainable Development Goals

e) State any one law with respect to international Environmental Law.

f) What is Inter-generational equity?

Q2) a) Write note on MARPOL **[6]**

b) Write importance of UNFCC in mitigation of climate change. **[4]**

Q3) a) Describe Agenda 21 in detail. **[6]**

b) Why International Environmental laws are essential? Explain **[4]**

Q4) a) What is Ramsar convention? Explain in detail **[6]**

b) Importance of montreal protocol. **[4]**

Q5) Write short note on any two of the following **[10]**

a) India's efforts in paris agreement.

b) What are the five general principles of International environmental law?

c) What does the Basel convension mainly deals with? Explain in overall goals.

Total No. of Questions : 7]

SEAT No. :

PC-4298

[Total No. of Pages : 2

[6343]-3001

M.Sc.

ENVIRONMENTAL SCIENCES

ENV601MJ: Environmental Impact Assessment and Environmental Audit

(2023 Pattern) (Semester - III)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any 5 questions from Q.2 to Q.7.***

Q1) **Answer Any Five of the following:** **[10]**

a) What is 'Screening' in EIA process? Why it is important?

b) State any two operating principle of EIA. Write in brief about the same.

c) Write in brief about basic structure of an audit.

d) Write about validity of environmental clearance for different categories of projects or activities.

e) Which projects causes major changes in the land use? How (briefly explain)?

f) How EIA supports sustainable development?

Q2) a) Explain importance of baseline data collection in EIA process. Also, write about methodology of data collection on water environment of ecology, biodiversity. **[7]**

b) Discuss the important features of EIA notification 2006. **[5]**

P.T.O.

Q3) a) Discuss the advantages and limitations of 'Overlay' and 'checklist' methods of impact assessment. **[7]**

b) Explain the methodology of data collection for traffic and add a note on its importance in case of township project and airport activity. **[5]**

Q4) a) Discuss the common risk and hazards observed in any industry such as sugar, cement plant etc. **[7]**

b) What are your views on usefulness of public hearing in the process of EIA? **[5]**

Q5) a) How open cast iron are mines affects land use, hydrology and socio-economy of site and surrounding areas. **[7]**

b) Prepare a post project monitoring plan for a cement industry. **[5]**

Q6) a) Discuss environment management plan (EMP) for a highway project. **[7]**

b) Discuss the features of solid by hazardous waste from a housing complex projects. Also explain methodology for its handling, transport & disposal. **[5]**

Q7) **Write a note on any two of the following:**

a) Scoping and terms of reference (ToR) **[6]**

b) Pollution and disposal audit. **[6]**

c) ISO 14000 **[6]**

Total No. of Questions : 7]

SEAT No. : ____

PC-4299

[Total No. of Pages : 2

[6343]-3002

M.Sc.

ENVIRONMENTAL SCIENCES

ENV602MJ: REMOTE SENSING & GIS

(NEP) (2020 Pattern) (Semester - III)

Time : 3 Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any 5 questions from Q.2 to Q.7.***

Q1) **Answer Any Five of the following:** **[5 × 2 = 10]**

a) What do you mean by vector data?

b) Give longform of DEM, DSM & DTM.

c) How GPS is useful in GIS students?

d) What is overlap in GIS?

e) What are characteristics or geometric features?

f) How Remote sensing is differ than GIS?

Q2) a) Explain in detail basic components of remote sensing. **[7]**

b) What is active & passive Remote sensing? Give examples. **[5]**

Q3) a) Discuss the various applications of RS & GIS in agricultural studies. **[7]**

b) What are the purpose of Drone mapping in Environment study? **[5]**

P.T.O.

Q4) a) Give a detailed account or sattelite sensors. **[7]**

b) What is the concept of Datum? Give its importance. **[5]**

Q5) a) Discuss in detail interactions of Electro Magnetic Radiations. **[7]**

b) Explain the concept of Atmospheric window. **[5]**

Q6) a) Explain the concept of sattelite orbits. Give its characteristics. **[7]**

b) What are the different way's of spatial data aquisition? **[5]**

Q7) **Write a short note on any two of the following:**

a) Photo Interpretation element. **[6]**

b) Push broom scanning. **[6]**

c) Indian Navigation System. **[6]**

Total No. of Questions : 5]

SEAT No. : ____

PC-4300

[Total No. of Pages : 2

[6343] - 3003
M.Sc.
ENVIRONMENTAL SCIENCE
ENV 603 MJ: Watershed Management
(2023 Credit Pattern) (Semester - III)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Q. 1 is compulsory.***
2) ***Answer any three questions from Q. 2 to Q. 5.***

Q1) **Answer any five of the following** **[5]**

a) What is gully plug?

b) How does climate change affects watershed management? (any two)

c) Give any two examples of water harvesting streams.

d) What is integrated watershed management?

e) Define - Topographical survey?

f) What are the components of watershed management?

Q2) a) Brief on - water balance and hydrologic equation. **[6]**

b) Define watershed management and explain its objectives. **[4]**

P.T.O.

Q3) a) Define the following concepts: **[6]**

i) Contour trenders

ii) Earthern dam

iii) Dugout farm

iv) Gully plugs

b) Explain - watershed features **[4]**

Q4) a) Explain - watershed morphology **[6]**

b) Brief on - common instruments used for watershed management surveys. **[4]**

Q5) Write short notes on any two of the following **[10]**

a) Give any two success stories of watershed management in India.

b) Water harvesting methods (Traditional)

c) Watershed features (With examples)

Total No. of Questions : 5]

SEAT No. :

PC-4301

[Total No. of Pages : 2

[6343]-3004

M.Sc. (Part - II)

ENVIRONMENTAL SCIENCES

ENV 610 MJ : Environmental Resource Monitoring

(2023 Credit Pattern) (NEP) (Semester - III)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any three question from Q.2 to Q.5.***

Q1) **Answer any Five of the following :** **[5]**

a) What is environmental resource monitoring?

b) How can tree age be estimated?

c) Differentiate between sound and noise.

d) What is GBH in forestry?

e) What is dB?

f) What are the challenges in environmental monitoring?

Q2) a) How is the information obtained from monitoring utilized in the formulation of policies? **[6]**

b) What are the key parameters measured in weather monitoring? Discuss any one in details. **[4]**

Q3) a) Discuss the wildlife monitoring techniques. **[6]**

b) Define Noise. Give the national Standards for noise. **[4]**

Q4) a) Discuss the role of soil analysis in environmental management. **[6]**

b) Explain the details about water sampling techniques. **[4]**

P.T.O.

Q5) **Write short notes on any two of the following:** **[10]**

a) Principal and working of ambient fine dust samples.

b) Remote sensing.

c) Soil profile.

Total No. of Questions : 5]

SEAT No. :

PC-4302

[Total No. of Pages : 2

[6343]-3005

M.Sc. (Part - II)

ENVIRONMENTAL SCIENCE

ENV 612 MJ : Restoration Ecology

(2023 Pattern) (NEP) (Semester - III)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any three question from Q.2 to Q.5.***

Q1) **Answer any Five of the following :** **[5 × 1 = 5]**

a) Give example of stressors in forest ecosystem.

b) Define Landscape ecology.

c) Define resilience.

d) List direct artifical recharge methods of ground water.

e) What is Assisted Natural Restoration.

f) Define Mitigation.

Q2) a) Justify role of 'Keystone' species are very significant in restoration. **[6]**

b) What is Bioremediation? Explain with suitable example. **[4]**

Q3) a) Discuss in detail, causes of degradation of grassland and explain methodology for its restoration. **[6]**

b) Give significance of waste water recycling in river restoration. **[4]**

Q4) a) Explain steps in restoration of dumping grounds. **[6]**

b) Discuss in detail principles of ecological restorations. **[4]**

P.T.O.

Q5) **Write short notes on any two of the following:** **[10]**

a) Biosrubber

b) Avenue trees

c) Miyawaki method of restoration

Total No. of Questions : 5]

SEAT No. :

PC-4303

[Total No. of Pages : 2

[6343]-3006

M.Sc.

ENVIRONMENTAL SCIENCE

ENV - 614 MJ : Forestry and Wildlife Management

(2023 Pattern) (NEP) (Semester - III)

Time : 2 Hours] ***[Max. Marks : 35***

Instructions to the candidates:

1) ***Question 1 is compulsory.***
2) ***Answer any 3 questions from Q.2 to Q.5.***

Q1) **Answer any five of the following :**

a) What is forest regeneration? **[1]**

b) What are the NTFP's? **[1]**

c) Define Tribiology. **[1]**

d) In which year the Indian Forest Act was passed? **[1]**

e) What is population growth? **[1]**

f) What is mean by Etnanobotany? **[1]**

Q2) **Answer the following.**

a) Explain in detail concept of forestry and Habitat management. **[6]**

b) What are the ecological and physiological factors influencing vegetation? **[4]**

Q3) **Answer the following.**

a) Discuss in brief principles and Techniques of forest management systems? **[6]**

b) Explain in detail objectives and scope of agroforestry? **[4]**

P.T.O.

Q4) **Answer the following.**

a) Explain in brief methods of surveying and forest engineering. **[6]**

b) Discuss processing and disposal of NTFP's? **[4]**

Q5) **Write short notes on any two of the following.** **[10]**

a) Nutrient cycling. **[5]**

b) Wildlife protection Act, 1972. **[5]**

c) Estimation of demand and supply. **[5]**

▽▽▽▽