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PGIS-229 A-21
M.Sc. I Semester (CBCS Scheme) Degree Examination
ENVIRONMENTAL SCIENCE
Aquatic Ecology
Paper - SCT - 1.1
(New Syllabus)

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. Answer **all** sections.
2. Section - A is **compulsory**.

SECTION - A

Answer any **Ten** of the following.

(10×2=20)

1. a) Tributaries
b) Estuary
c) Productivity
d) Reed - swamp stage
e) Bogs
f) Water pollution
g) Siltation
h) Dams
i) Wetland
j) Aquatic biodiversity
k) Omnivores
l) Hypoxic zone

SECTION - B

Answer any **Six** of the following.

(6×5=30)

2. Highlight the salient features of blackish aquatic ecosystem.
3. Write a note on salient features of glacial streams.

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4. Explain the nutrient status of Estuary.
5. What are Machrophytes? Add a note on its functions.
6. Write a note on diversity of Zooplanktons in lake.
7. Explain the distribution of flora in lentic water bodies.
8. Write note on impact of climate change on wetlands.
9. Briefly discuss on Indian Ramsar sites.

SECTION - C

Answer any Three of the following.

(3×10=30)

10. Discuss the highlights of National Wetland Rules 2010.
 11. Discuss the present scenario of wetland conservation initiatives in India.
 12. Explain in details of primary and secondary productivity of river ecosystems.
 13. Differentiate between structure and functions of marine and fresh water ecosystems.
 14. Discuss the cause and consequences of Eutrophication.
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PGIS-226 A-21
M.Sc. I Semester (CBCS Scheme) Degree Examination
ENVIRONMENTAL SCIENCE
Environment and Ecosystem
Paper : HCT 1.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer All sections. Section - A is compulsory.

SECTION - A

- I. Answer any Ten of the following: (10×2=20)**
- a) Growth theory
 - b) Biotic component.
 - c) Commensalism.
 - d) Savanna
 - e) Estuaries
 - f) Ecological indicators
 - g) Species diversity
 - h) Co-evolution.
 - i) Biosphere
 - j) Environmental structure.
 - k) Edge effect.
 - l) Mortality.

SECTION - B

- Answer any Six of the following: (6×5=30)**
2. Write a note on closed and open system of environment.
 3. Explain phosphorus cycle in the environment.
 4. Write a note on ecological pyramids.
 5. Write a brief note on human population explosion and consequences.

6. Write a note on concept of ecological dominance.
7. Briefly explain the environmental crises.
8. Give an account of Tropical rain forest.
9. Briefly explain concept of productivity.

SECTION - C

Answer any Three of the following:

(3×10=30)

10. Describe the structure and functions of environment.
 11. Explain the salient features and characteristic of biomes.
 12. Write a detailed account on population interaction.
 13. Explain the energy of life with suitable example.
 14. Describe species diversity in communities.
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PGIS-229 AB-21
M.Sc. I Semester (CBCS Scheme) Degree Examination
ENVIRONMENTAL SCIENCE
Biodiversity and Wildlife Conservation
Paper : SCT 1.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer **All** sections. Section - A is **compulsory**.

SECTION - A

Answer any **Ten** of the following.

(10×2=20)

1. a) Flagship species.
- b) Sanctuaries.
- c) Red data book.
- d) Direct count.
- e) Productivity.
- f) Agenda 21.
- g) Endanger.
- h) Wood fuel production.
- i) Road strip method.
- j) Hot - spots.
- k) Sacred grooves.
- l) Carbon Storage.

SECTION - B

Answer any **Six** of the following.

(6×5=30)

2. Explain Concept of keystone species.
3. Write a short note on IUCN red list categories.

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4. Write a short note on Biodiversity and their management.
5. Explain Kyoto protocol.
6. Write a short note on wildlife habitat and their management.
7. Explain values of biodiversity.
8. Explain green belt and its influence on urban environment.
9. Write a short note on Project tiger.

SECTION - C

Answer any **Three** of the following.

(3×10=30)

10. Write a detailed account on convention of biological diversity.
 11. Explain the reasons for depletion of wildlife and add a note on community conflict.
 12. Write a note on forest influence on climate regulation.
 13. Describe the role of NGO's in wildlife conservation.
 14. Discuss on endangered, endemic and extinct species of India.
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PGIS-227 A-21
M.Sc. I Semester (CBCS Scheme) Degree Examination
ENVIRONMENTAL SCIENCE
Environmental Geosciences
Paper : HCT 1.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidate:

- 1) Answer **all** the sections
- 2) Section A is **compulsory**.

SECTION - A

Answer any Ten of the following:

(10×2=20)

1. a) Age of the Earth.
b) Mineral
c) Rock
d) Chemical Weathering
e) Slope stability
f) Epicenter
g) Aquifers
h) Tsunami
i) Water & Earth.
j) Salt-water intrusion
k) GIS
l) Watershed.

SECTION - B

Answer any Six of the following:

(6×5=30)

2. Briefly explain the internal structure of the Earth.
3. Explain the rock cycle with neat sketch.
4. Briefly explain the physical properties of minerals.
5. Write a note on porosity and permeability?

6. Briefly explain the origin and occurrence of ground water.
7. Briefly explain the causes, classification of earthquake?
8. Explain the classification of soils with neat sketch?
9. Explain the coastal zones of India.

SECTION - C

Answer any Three of the following:

(3×10=30)

10. Define Hazards. Discuss the natural disaster management strategy.
 11. Discuss the risk management of flood disaster.
 12. Discuss in details conservation of water resources.
 13. Discuss the Remote sensing and GIS applications in watershed management system.
 14. Write a detailed about mining and quarrying effects on the environment.
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PGIS-228 A-21
M.Sc. I Semester (CBCS) Degree Examination
ENVIRONMENTAL SCIENCE
Environmental Chemistry
Paper - HCT - 1.3

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer **all** sections. Section - A is **compulsory**.

SECTION - A

Answer any **Ten** of the following

(10×2=20)

1. a) Polymerase Chain Reaction (PCR)
- b) Gibb's energy
- c) Dobson unit
- d) Acidic soil
- e) Nephelometer
- f) Chlorofluorocarbons (CFCs)
- g) Micro nutrients
- h) Saline soil
- i) Radionuclide
- j) Cadmium
- k) Malathion
- l) Atomic Absorption Spectroscopy (AAS)

SECTION - B

Answer any **Six** of the following.

(6×5=30)

2. Write a note on solubility of gases in water.
3. Explain soil profile with a neat labelled diagram.
4. Discuss macronutrients in soil.
5. Describe the properties of water.

6. Write a note on PCBs.
7. Explain redox process.
8. Explain X-ray diffraction.
9. Differentiate titrimetric and gravimetric techniques.

SECTION - C

Answer any **Three** of the following :

(3×10=30)

10. Discuss the thermochemical and photochemical reactions in atmosphere.
 11. Illustrate nitrogen and carbon cycles with labelled diagram.
 12. Explain water pollution due to heavy metals.
 13. Write an essay on carcinogens in polluted air and soil.
 14. Describe various chromatographic techniques.
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PGIS-206 A-21
M.Sc. I Semester Degree Examination
BOTANY
Bryophytes, Pteridophytes and Gymnosperms
Paper : BOT: HCT:1.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) Answer any **Five** questions.
- 2) Question No.1 is **compulsory**.

Answer in One or Two sentences:

(10×2=20)

1.
 - a) Gemmae.
 - b) Hyaline cells.
 - c) Rhizophore.
 - d) Ligule.
 - e) Telome theory.
 - f) Sporo carp.
 - g) Leptosporangiate.
 - h) Pollen chamber.
 - i) Winged pollen grain.
 - j) Pentoxylon.
2. Give an account of thallus organization in marchantiales. **(15)**
3. Write an account of vegetative habit and reproduction in Equisetum. **(15)**
4. Write an essay on economic importance of pteridophytes. **(15)**
5. Give an account of anatomical and reproductive features of Gnetum. **(15)**
6. Write short notes on any **Three** of the following: **(3×5=15)**
 - a) Economic importance of bryophytes.
 - b) Calamitales.
 - c) Recent developments in pteridophytes.
 - d) Endemic taxa of gymnosperms in India.

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PGIS-208 A-21
M.Sc. I Semester Degree Examination
BOTANY
Biodiversity And Conservation
Paper : BOT:SCT-1.4.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) Answer any **Five** questions.
- 2) Question No.1 is **compulsory**.

Answer in One or Two sentences:

(10×2=20)

1. a) Ecosystem biodiversity.
b) Conservation of biodiversity
c) Threatened species.
d) IUCN
e) Biodiversity hotspots.
f) Herbal garden.
g) Biosphere reserves.
h) Sacred groves.
i) Legal aspects on conservation.
j) Gulbarga region biodiversity.
2. Describe the megadiversity centres of world and India. **(15)**
3. Write an account on different categories of biodiversity loss. **(15)**
4. Critically write on biodiversity conservation, implications & action plans. **(15)**
5. Discuss policies, priority setting and future strategies for biodiversity conservation. **(15)**
6. Write short notes on any **Three** of the following: **(3×5=15)**
 - a) Rio de Jenerio Summit.
 - b) Factors for habitat loss.
 - c) *In situ* conservation.
 - d) Legal policy for biodiversity conservation.

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PGIS-209 A-21
M.Sc. I Semester Degree Examination
BOTANY
Microbial Technology
Paper : BOT:SCT:1.4.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

- 1) Answer any **Five** questions.
- 2) Question No.1 is **compulsory**.

Answer in One or Two sentences.

(10×2=20)

1.
 - a) Trichodum
 - b) Cryogen.
 - c) Aspergillus niger
 - d) Nitrogenase.
 - e) Microbial enzymes.
 - f) Microbial toxins.
 - g) Cell receptors.
 - h) Vaccines.
 - i) Antoinmunity
 - j) Cyanobacteria.
2. Give an account on plant growth promoting rhizobacteria. **(15)**
3. Write an account on Antibiotic resistance in bacteria. **(15)**
4. Explain in details foods made by microbial activity. **(15)**
5. Explain structure and function of antibody molecules. **(15)**
6. Write short notes on any **Three** of the following: **(3×5=15)**
 - a) Role of fungi in Agriculture.
 - b) Fungi in Industrial Applications.
 - c) Antigen & Antibody interactions.
 - d) Microbial Fuels.

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PGIS-239 A-21
M.Sc. I Semester (Theory) Degree Examination
MICROBIOLOGY
Bacteriology
Paper : HC - 1.3

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates: Answer All sections.

SECTION - A

Write a brief note on any **Ten** of the following :

(10×2=20)

1. a) Inclusion bodies.
- b) Differential staining.
- c) Dendrogram.
- d) Mordant.
- e) Halophiles.
- f) Bioluminescence.
- g) Taxonomic ranks.
- h) Pili.
- i) Endospore.
- j) G+C ratio.
- k) Acid fast bacteria.
- l) Obligate parasite.

SECTION - B

Write short note on any **six** of the following.

(6×5=30)

2. Economic importance of Cyanobacteria.
3. Construction of similarity matrix based taxonomic groups.
4. Functions of cell membrane.
5. Discovery and evolution of bacteria.

6. Binary cell division in Bacteria.
7. Non - culturable bacteria.
8. Catabolic keys in bacterial systematics.

SECTION - C

Answer any **Three** of the following :

(3×10=30)

9. Explain the concept of differential staining with emphasis on endospore staining.
 10. Define bacterial diversity assessment of culturable and non - culturable bacteria.
 11. Explain the ultrastructure of bacteria with the help of neat labelled diagram.
 12. Give a detailed account of salient features of Bergey's Manual of Systematic Bacteriology.
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PGIS-240 A-21
M.Sc. I Semester (Theory) Degree Examination
MICROBIOLOGY
Virology and Mycology
Paper : SC - 1.4

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates: Answer **All** sections.

SECTION - A

Write brief notes on any **Ten** of the following :

(10×2=20)

1. a) COVID - 19.
- b) Nucleoprotein.
- c) ICTV.
- d) Mycophages.
- e) Zoonotic infections.
- f) Coenocytic mycelium.
- g) Budding of Yeast.
- h) Lichens.
- i) Cell line media.
- j) Ivanovski.
- k) Oncogenic virus.
- l) Spermatogamy.

SECTION - B

Write short notes on any **Six** of the following:

(6×5=30)

2. Lytic cycle of bacteriophage.
3. Multiplication of DNA virus genome.
4. Salient features of virus classification.
5. Structure of plant virus.

6. General characteristics of Ascomycetes.
7. A sexual reproduction of Fungi.
8. Life cycle of Yeasts.

SECTION - C

Answer any **Three** of the following :

(3×10=30)

9. Explain invivo and invitro methods of Virus cultivation and purification.
 10. Describe animal virus replication mechanism with example.
 11. Write a detailed account on economic importance of Fungi with examples.
 12. Describe various modes of nutrition in Fungi.
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