

SECOND SEMESTER P.G. DEGREE EXAMINATION, APRIL 2020

(CCSS)

M.Sc. Environment Sciences

ESW 2C 10—REMOTE SENSING AND GIS

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A (Essays)*Answer any two out of the following three questions.**10 marks each.*

1. What is GIS ? Detail on its components and applications in environmental analysis.
2. Write an essay on aerial photogrammetry detailing the methods and equipments involved.
3. Discuss the technology of Remote Sensing with a note on different sensors and platforms.

(2 × 10 = 20 marks)

Part B (Short Answers)*Answer any eight out of the following ten questions.**5 marks each.*

4. Explain the electromagnetic spectrum with necessary diagrams.
5. What are the environmental applications of GPS ?
6. Explain the concept of data in GIS. What are the two types ?
7. Write a brief note on survey equipments.
8. How is spatial data linked with non-spatial data in GIS.
9. What is GPS ? What are its components ?
10. Briefly describe the history and evolution of Remote Sensing technology in India.
11. What are the different methods of measuring area and distance in cartography ?
12. Enumerate in detail the different elements of photo-interpretation.
13. What are the different types of maps used in environmental analysis ?

(8 × 5 = 40 marks)

Turn over

Part C (Very Short Answers)

*Answer any ten out of the following twelve questions.
2 marks each.*

14. Active remote sensing.
15. Isobars.
16. Give an example for open source GIS software.
17. Contours.
18. Components of a map layout.
19. Image classification.
20. Clinometer.
21. Atmospheric window.
22. Large scale maps.
23. Cadastral maps.
24. Overlay analysis.
25. IRS.

(10 × 2 = 20 marks)

SECOND SEMESTER P.G. DEGREE EXAMINATION, APRIL 2020

(CCSS)

M.Sc. Environmental Science

ESW 2C 09—HYDROLOGY AND WATER RESOURCE MANAGEMENT

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A

*Answer any two of the following.
Each answer not to exceed 500 words.*

1. State the impact of climate change on hydrology and water resources.
2. With a neat and labeled illustration, give an account of various steps involved in hydrological cycle.
3. What is ground water ? Explain the geologic formations as aquifers and also explain the various types of aquifers.

(2 × 10 = 20 marks)

Part B

*Answer any eight of the following.
Each answer not to exceed 250 words.*

4. Write a short note on integrated water resource management.
5. What is Water Balance ? Explain.
6. What is Darcy's law ? Explain.
7. Discuss the vertical distribution of ground water.
8. Write a short note on urban water demand.
9. Comment on rain water-surface relationship.
10. What do you mean by watershed ? What are the various types of watershed management ?
11. What is isotope hydrology ?
12. Write a short note on ground water occurrence and types.
13. How does topography affect ground water distribution ? Discuss.

(8 × 5 = 40 marks)

Turn over

Part C

Answer any ten of the following.

Each answer not to exceed a paragraph.

14. What is catchment ?
15. What do you understand by the term blue water ?
16. Define drainage basin.
17. What is advection ?
18. What are the rock properties that affect ground water ?
19. What is meant by open channel flow ?
20. What is a hydrograph ?
21. What is peak discharge ?
22. Define storage coefficient.
23. What is isotope hydrology ?
24. What is a flood plain ? Give an example of one.
25. What do you mean by Flow Duration Curve ?

(10 × 2 = 20 marks)

SECOND SEMESTER P.G. DEGREE EXAMINATION, APRIL 2020

(CCSS)

M.Sc. Environment Sciences

ESW 2C 08—ENVIRONMENTAL MICROBIOLOGY AND BIOTECHNOLOGY

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A*Answer any two of the following.**Each answer not to exceed 500 words.*

1. Soil Micro-organisms has a very significant role in biogeochemical cycles. Justify the statement.
2. Write an essay on the role of Biotechnology in Environmental Protection.
3. What are the environmental implications of synthetic fertilizers ? Brief Biofertilizer technology.

(2 × 10 = 20 marks)

Part B*Answer any eight of the following.**Each answer not to exceed 250 words.*

4. Write a brief note on the morphology of micro-organisms. Use suitable illustration if necessary.
5. Write a short note on biopesticides. List out some examples explaining their uses.
6. How micro-organisms can be identified by protein analysis ?
7. How ammonia and nitrate used as biosensors ?
8. Elaborate on NFT.
9. What are the survival strategies of archae bacteria ?
10. Comment on some techniques for microbial analysis of water quality.
11. What are biofilms and microbial mats ? What is the mechanism of formation of biofilms ?
12. Write a short note on soil microbes associated with plants.
13. How is antibiotic sensitivity testing done ?

(8 × 5 = 40 marks)

Turn over

Part C

Answer any ten of the following.

Each answer not to exceed a paragraph.

14. What is phage typing ?
15. What are the components of biofilms ? Why are they formed ?
16. Define extremophiles with suitable examples.
17. What do you understand by the term microbial ecosystem ?
18. What do you mean by biofilters ?
19. Which is the microbial enzyme that is mostly used in leather industry ? Why ?
20. What is bioleaching ? Where is it used ?
21. Why are some soil bacteria seen associated with plants ? What kind of support do they provide each other ?
22. What do you mean by waterborne diseases ? Write two examples.
23. List out the advantages provided by biofilms to micro-organisms.
24. Define bioremediation.
25. What are constructed wetlands ? What are the applications of these ?

(10 × 2 = 20 marks)

SECOND SEMESTER P.G. DEGREE EXAMINATION, APRIL 2020

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M.Sc. Environmental Sciences

ESW 2C 07—FUNDAMENTALS OF ENVIRONMENTAL ENGINEERING

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A (Essays)

*Answer any two out of the following three questions.
10 marks each.*

1. Give a detailed description of industrial air pollution control techniques.
2. Write an essay on water pollution control methods.
3. What are the points to be remembered in the closure and post-closure monitoring of sanitary landfills ?

(2 × 10 = 20 marks)

Part B (Short Answers)

*Answer any eight out of the following ten questions.
5 marks each.*

4. Explain the waste water treatment methods to be employed in distilleries.
5. Explain the concept of industrial ecology in environmental engineering ?
6. Write a brief note on Vermitechnology.
7. Discuss the different particulate air pollution control techniques.
8. Suggest suitable air pollution management measures to be adopted at source.
9. Write a brief note on ethics in environmental engineering.
10. Briefly describe the important water quality parameters and their significance.
11. What is the role of anaerobic micro-organisms in the management of water pollution ?
12. Discuss the role of enzyme immobilization techniques in abatement of water pollution.
13. What are the causes and effects of light pollution ?

(8 × 5 = 40 marks)

Turn over

Part C (Very Short Answers)

*Answer any ten out of the following twelve questions.
2 marks each.*

14. Effects of radiation pollution.
15. Chlorination.
16. Landfill gas.
17. Solid Waste Management Rules, 2016.
18. Activated Sludge Process.
19. Waste management hierarchy.
20. Electro Static Precipitators.
21. pH and EC.
22. Flue gases.
23. Industrial ecology.
24. Anaerobic digestion.
25. Methanogenesis.

(10 × 2 = 20 marks)