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Reg. No. :

Name :

Sixth Semester B.Sc. Degree Examination, March 2021

Career Related First Degree Programme under CBCSS

Group 2 (a) - Botany & Biotechnology

BB1672 - ENVIRONMENTAL BIOTECHNOLOGY

(2018 Admission Regular)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions in **a word** or **one or two** sentences. Each question carries **1** mark.

1. What are bioplastics?
2. Comment on lagooning.
3. Name any two water pollutants.
4. What is an effluent?
5. Name any test used for measuring the microbial quality of water.
6. What is biomass?
7. What are methanogenic bacteria?
8. Mention two advantages of vermicomposting over open composting.

P.T.O.

9. Comment on superbug.
10. Which organization standardizes the water quality parameters across nations?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions. **Each** question carries **2** marks. (Answer not to Exceed **One** Paragraph.)

11. What is landfilling?
12. What are ores? How can microbes contribute to their enrichment?
13. Mention the effects of fecal bacteria in potable water.
14. List out the common air pollutants and their effects.
15. Comment on the preparation of compost from organic wastes.
16. Comment on biosphere.
17. Comment on the fertilizer value of slurry.
18. Comment on the potential of Jojoba as an energy crop.
19. Does the organic load in aquatic systems affect the quality of water.
20. What are the potential applications of biomineralization?
21. How can environmental awareness be increased in the society?
22. What is COD?
23. What is bioaccumulation?
24. Comment on microbial degradation of pesticides.

25. Can energy be produced from photosynthetic pigments? Comment.
26. Explain the laboratory techniques for detecting coliform bacteria in food.

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. **Each** question carries **4** marks. (Answer not to exceed **120** words)

27. What is bioleaching?
28. Elaborate the effects of pathogenic bacteria from water on humans.
29. What is phytoremediation?
30. Comment on BOD.
31. Explain microbial hydrogen production.
32. How does industrial effluents affect the aquatic systems?
33. Comment on the prospects of vegetable oils as engine fuels.
34. Explain bioaugmentation.
35. What is the scope of environmental biotechnology with respect to economic aspects?
36. Explain the steps and process of biogas production.
37. Comment on the gasohol experiment.
38. How sludge can be disposed of?

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. Each question carries **15** marks. (Answer not to exceed **three** pages)

39. Explain the treatment of solid wastes.
40. Detail the treatment methods of municipal wastes and hazardous industrial effluents.
41. Explain the application of microbes in production of fuels from biomas.
42. Explain various methods and protocols in bioremediation.
43. Explain in detail the environmental legislation laws.
44. What is pollution? Mention its types, sources and effects.

(2 × 15 = 30 Marks)

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Group 2 (a) Botany and Biotechnology

BB 1672 : ENVIRONMENTAL BIOTECHNOLOGY

(2015 – 2017 Admission)

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **all** the questions in a word or **one** or **two** sentences. Each question carries **1** mark.

1. Name any one of the species used for vermicomposting.
2. Define Xenobiotics.
3. Identify the composition of biogas
4. Expand COD
5. What is Bioaccumulation?
6. What is Gasohol?
7. Which year is water Act is enacted in India?
8. Define biomass.

9. What is Aerobic composting?
10. Define smog.

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** questions. Each question carries 2 marks. Answer not to exceed one paragraph.

11. What is biodiesel?
12. Give a note on open windrow composting.
13. Give note on bioplastic.
14. What is superbug?
15. What is biomineralisation?
16. Mention the importance of environmental biotechnology.
17. Give note on dark fermentation.
18. What is biosphere?
19. What do you mean by Total coliform count?
20. Explain direct biophotolysis.
21. Write a note on Jatropha.
22. Explain the ways by which the plant pigments release their energy.

(8 × 2 = 16 Marks)

PART – C

Answer **any six** questions. (Answer not to exceed 120 words) Each question carries **4** marks.

23. Explain the potential of Jojoba as an energy crop.
24. Differentiate between BOD and COD.
25. Explain the idea photosynthetic pigments as a means for future energy source.
26. Give an account on the methods for the detection of coliforms in water.
27. Enumerate different methods of land filling.
28. Explain the effects of organic matter contamination in a pond ecosystem.
29. How to use biomass as a source for energy production?
30. Write a note on environmental legislation in India.
31. Explain advantages and disadvantages while using bioplastics instead of plastics.

(6 × 4 = 24 Marks)

PART – D

Answer **any two** questions. (not more than three pages) Each question carries **15** marks.

32. Give a detailed note on solid waste treatment.
33. What is bioremediation? Give a detailed note on different approaches of bioremediation.
34. Explain steps and process of biogas production.
35. Explain the various methods in sewage water treatment

(2 × 15 = 30 Marks)

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Sixth Semester B.Sc. Degree Examination, March 2020

Career Related First Degree Programme under CBCSS

Group 2(a) Botany and Biotechnology

BB 1672 : ENVIRONMENTAL BIOTECHNOLOGY

(2015 Admission onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** the questions in a **word** or **one or two** sentences. **Each** question carries **1** mark.

1. What is meant by garbage?
2. Give the Binomial of the organism used in vermicomposting.
3. Which year 'Water act' came into force?
4. What is BOD?
5. What is meant by 'coliforms'?
6. What is Mycorrhiza?
7. What are chemoautotrophs?
8. Name any two examples for methanogenic bacteria.

9. What is meant by '3R's'?

10. Name an organism used for bioleaching.

SECTION – B

(10 × 1 = 10 Marks)

Answer **any eight** questions. **Each** question carries **2** marks. (Answer not to exceed **one** paragraph).

11. How COD is measured?

12. What are the constituents of hydrosphere?

13. Briefly mention the steps in biogas production.

14. Define Phytoremediation.

15. What is meant by lagooning?

16. What is biodiesel?

17. What are the major sources of air pollution?

18. Biopesticides.

19. Write a short note on soil pollutants.

20. What are the effects of Industrial waste in ecosystem?

21. Define bioaugmentation.

22. Role of microbes in effluent treatment systems.

(8 × 2 = 16 Marks)

SECTION – C

Answer **any six** questions. **Each** question carries **4** marks. (Answer not to exceed **120** words)

23. Write a short account on the scope of biotechnology in environment protection.
24. Describe the methods to assess quality of drinking water.
25. Write about the role of bacteria in biogas production.
26. Give a short account on Bioplastics.
27. Describe how microbes can be used in degrading xenobiotics.
28. Briefly discuss Environmental protection act.
29. Discuss how the household wastes can be managed for better environment and energy production.
30. Give a short account on biofuel crops.
31. Discuss about the Preventive measures for air pollution.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. **Each** question carries **15** marks. (Answer not to exceed **three** pages)

32. Write a detailed account on solid waste management strategies.
33. What are non conventional energy sources? Describe how biomass can be utilized for the production of energy?
34. Write an essay on the causes of water pollution? What are strategies to prevent it?
35. What is Bioleaching? Describe the various bioleaching methods.

(2 × 15 = 30 Marks)

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Career Related First Degree Programme under CBCSS

Group 2(a) Botany and Biotechnology
BB 1672 : ENVIRONMENTAL BIOTECHNOLOGY
(2015 Admission onwards)

Time : 3 Hours

Max. Marks : 80

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8. Name any two examples for methanogenic bacteria.

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13. Briefly mention the steps in biogas production.
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(2 × 15 = 30 Marks)

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Name :

Sixth Semester B.Sc. Degree Examination, April 2022
Career Related First Degree Programme under CBCSS

Group 2 (a) Botany and Biotechnology

BB 1672 : ENVIRONMENTAL BIOTECHNOLOGY

(2017 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** the questions in a word or **one or two** sentences. Each question carries **1** mark.

1. Write the year at which environmental Protection Act enacted in India.
2. Name the most important contribution of Ananda Mohan Chakrabarty in environmental biotechnology.
3. Define Lithosphere.
4. What is Activated Sludge?
5. What is the importance of *Ruminococcus albus*?
6. What is a Flocculation Process?
7. Name any one of the hydrogen producing microorganism.
8. What is herbicide?

9. What is meant by biomass?
10. Identify the significance of *Jatropha*.

(10 × 1 = 10 Marks)

SECTION – B

Answer **any eight** questions. Each question carries **2** marks. Answer not to exceed **one** paragraph.

11. What is In Situ Bioremediation?
12. Give a note on lagooning.
13. Name any two Indicator Microorganisms in water quality assessment.
14. What is Bioaccumulation?
15. What is Total Viable Count?
16. What is Sludge Thickening?
17. Give note on composting.
18. What is Brilliant green lactose bile broth test?
19. What do you mean by Trickling Filter?
20. Explain Primary treatment process in waste water treatment.
21. Write a note on forest conservation act.
22. Explain the concept of biostimulation.

(8 × 2 = 16 Marks)

SECTION – C

Answer **any six** questions. (Answer not to exceed **120** words) Each question carries **4** marks.

23. Explain bioleaching.
24. Differentiate between direct and indirect photolysis.
25. Explain the scope and importance of environmental biotechnology.
26. What are water-borne diseases?
27. Briefly explain different methods of treatment for hazardous waste.
28. Explain biodiesel and its production.
29. What is phytoremediation? Give suitable examples.
30. Write a note on water act.
31. Explain the heavy-metal pollution and its consequences in environment.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions. (not more than **3** pages). Each question carries **15** marks.

32. Write an essay on various methods to assess the microbial quality of water.
33. What is a bioassessment and how it helps in preserving environmental quality?
34. Write detailed note on important environmental laws in India.
35. Explain the various source and the controlling measures of pollution.

(2 × 15 = 30 Marks)

B.T.C.S.
2018

Reg. No. :

Name :

Sixth Semester B.Sc. Degree Examination, April 2022
Career Related First Degree Programme under CBCSS

Group 2 (a) : Botany and Biotechnology

BB 1672 : ENVIRONMENTAL BIOTECHNOLOGY

(2018 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION - A

Answer **all** questions. Each carries 1 mark.

1. Define pollution.
2. What is lithosphere?
3. Mention the disadvantages of landfills?
4. Define COD.
5. What is meant by energy crops?
6. What is primary treatment?
7. Define biomagnification.
8. What are methanogens?

9. Differentiate between domestic and hazardous waste.
10. State the desirable properties of pollution indicator micro organisms.

(10 × 1 = 10 Marks)

SECTION – B

Answer **any eight** questions. Each carries **2** marks.

11. Which are the sources of air pollution?
12. What is compost tea?
13. State the significance of polyhydroxybutyrate.
14. How superbug is constructed?
15. What is biomineralization?
16. Define bioaugmentation.
17. What is BOD? Mention its significance.
18. State any one method used for disinfection of water.
19. What is meant by lagooning?
20. Vegetable oils are clean fuels. Justify.
21. What is sedimentation?
22. Define completed test.
23. What is ecologically sensitive zone?
24. Mention the significance of jojoba.
25. What is differential medium. Give an example.
26. Write briefly on windrows.

(8 × 2 = 16 M)

SECTION – C

Answer **any six** questions, Each carries **4** marks.

Write a brief note on :

27. Which are the different layers of atmosphere?
28. Soil pollution.
29. Activated sludge treatment.
30. Explain co metabolism.
31. Postulates of water act.
32. What is tertiary treatment?
33. Causes of water Pollution.
34. Phytoremediation.
35. Bioassessment of environmental quality.
36. Forest act.
37. Production of Microbial hydrogen.
38. Types and applications of bioplastics.

(6 × 4 = 24 Marks)

SECTION – D

Answer **any two** questions, Each carries **15** marks.

39. Explain the process of vermi composting.
40. Write an account on the important aspects of environment act.

41. Discuss bioleaching with suitable examples.
 42. Explain microbial degradation of pesticides.
 43. Describe the steps of water quality testing.
 44. Discuss the steps of biogas production.
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Sixth Semester B.Sc. Degree Examination, April 2022
Career Related First Degree Programme under CBCSS
Group 2(a) Botany and Biotechnology
BB 1672 : ENVIRONMENTAL BIOTECHNOLOGY
(2019 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions in a word or **one/two** sentences. **Each** question carries **1** mark.

1. Define environment.
2. What is mean by environmental degradation?
3. What are landfills?
4. Methanogens can act as an electron sink for anaerobic hosts. How?
5. What are energy crops?
6. Name any two Cyanobacteria that produce hydrogen.
7. What are superbugs?
8. Name an energy crop.
9. What is a smog?
10. Define bioleaching.

(10 × 1 = 10 Mar

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SECTION – B

Answer any **eight** questions. **Each** question carries **2** marks. Answer not to exceed **one** paragraph

11. What are the components of environment?
12. Differentiate BOD from COD.
13. How fecal coliforms are different from that of non-fecal ones?
14. What is the advantage of gasohol?
15. What are the functions of photosynthetic pigments?
16. What are the different ways through which energy stored in biomass is released?
17. Comment on any two enzymes involved in hydrogen production in cyanobacteria.
18. Discuss the applications of bioaugmentation.
19. What are the different types of phytoremediation?
20. List the advantages and disadvantages of bioleaching.
21. Comment on sludge evaporation lagoon.
22. Brief a note on Indian Forest Act.
23. What is vermicast?
24. What is the composition of earth's atmosphere?
25. Write the key features of biosphere.
26. What is Roundup herbicide? What purpose it is commonly used for?

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. **Each** question carries **4** marks. Short essay type)

27. Briefly mention scope and importance of environmental biotechnology.
28. How will you determine the microbial quality of water?
29. How hazardous industrial effluents are eliminated from drinking water?
30. Explain the process of biogas production.
31. Write an account on bioplastics.
32. How vegetable oils can be used for energy production?
33. Differentiate between bioaccumulation and biomineralisation.
34. How the environmental quality is assessed biologically?
35. What is composting? Explain its process.
36. What is water act? List out its salient points.
37. Explain the fundamentals of microbial hydrogen production. What are its applications?
38. Give an account on the composition and characteristics of lithosphere.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks. Essay type

39. What are the sources of environmental pollutants? How biotechnological interventions address this problem?
40. Explain the current methods employed for the detection and enumeration of coliform bacteria.

41. Discuss the use of microbes in the production of fuels from biomass.
42. Give an account on bioremediation and its importance.
43. Explain the technique of vermicomposting? Add a note on its importance.
44. Write a note on environmental protection act and its significance.

(2 × 15 = 30 Marks)
