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(21216)

Roll No.

M. Sc. (Biotech.)-III Sem.

NP-3338

M. Sc. (Biotechnology) Examination, Dec. 2016

Microbial, Industrial & Environmental

Biotechnology

[H-301(M. Sc. Biotech.)]

Time: Three Hours]

[Maximum Marks : 50

Note: Attempt questions from all Sections as per instructions.

Section-A

(Very Short Answer Questions)

Answer all the *five* questions. Each question carries
2 marks. Very short answer is required. $2 \times 5 = 10$

- 1/ Explain landmarks of Golden age of microbiology.
- 2/ Explain nutrient requirements for the growth of microbes.

(2)

3. ✓ Ames test.
4. ✓ Name the two most important professions related to microbiology.
5. ✓ Growth kinetics of microorganisms.

Section-B

(Short Answer Questions)

Answer any *two* questions out of the following four questions. Each question carries 5 marks. Short answer is required.

5×2=10

1. ✓ Explain probiotic foods.
2. ✓ Describe a typical growth curve of microbial population.
3. ✓ What are the methods of reducing environmental impacts of weedicides, pesticides and fertilizers.
4. ✓ How viruses differ from bacteria and other microbes?

NP-3338

(3)

Section-C

(Detailed Answer Questions)

Answer any *three* questions out of the following six questions. Each question carries 10 marks. Answer is required in detail. $10 \times 3 = 30$

1. How is enzyme cellulases, xylanases and lipase produced and what are its applications?
2. Describe in detail the pure culture technique used in microbiology.
3. How can antibiotics be produced commercially ?
What is the use of antibiotics?
4. Give the diagram for commercial production of ethanol, butanol and vitamins and explain.
5. Explain methods, types of fermentation and fermenter systems with diagram.

(4)

6. With suitable examples discuss the role of microorganisms in biodegradation of pesticides, heavy metals and petroleum products.

Or

Describe the process of domestic waste treatment by microorganism.

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(Printed Pages 3)

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Roll No. 1709356452

M.Sc. (Biotech.)-III Sem.

NP-3338

M.Sc. (Biotechnology) Examination,

Dec.-2018

**Microbial, Industrial & Environmental
Biotechnology**

[H-301 (M.Sc. Biotech.)]

Time : Three Hours]

[Maximum Marks : 50

Note : Attempt questions from all Sections as per
instructions.

Section-A

(Very Short Answer Questions)

Note : Answer all the **five** questions. Each ques-
tion carries 2 marks. Very short answer is
required. $2 \times 5 = 10$

1. Methods of sterilization.
2. Classification of microbes.
3. GEMs

P.T.O.

4. SCP
5. Xenobiotics

Section-B

(Short Answer Questions)

Note : Answer any **02** questions. Each question carries 05 marks. $5 \times 2 = 10$

1. Differentiate between pesticides and weedicides.
2. Differentiate between Fungi and Bacteria.
3. Differentiate between alkaloids and steroids.
4. Differentiate between useful microbes and harmful microbes.

Section-C

(Detailed Answer Questions)

Note : Answer any **03** questions. Each question carries 10 marks. $10 \times 3 = 30$

1. What are pollutants? Describe in brief various types of environmental pollution and their management using microbes.

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2. What is fermentation? How it is different from inoculation? Explain in brief about various methods and types of fermentation.
3. Explain in brief about the industrial production of the enzyme amylase, pectinases and proteases. Also mention their applications.
4. What are probiotic foods? Describe in brief various types of microbes involved in food industry, with suitable examples.
5. What is Biodegradation? How it is different from bioremediation? Describe in brief various types of microbial bio-remediation and their applications.
6. Write an essay on commercial production of some important antibiotics.

NP-333813

A

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(21119)

Roll No.

M.Sc. (Bio-Tech.) III Sem.

NP-3338

M.Sc. (Bio-Tech.) Examination,

November-2019

**MICROBIAL, INDUSTRIAL AND
ENVIRONMENTAL BIOTECHNOLOGY**

(H-301)

M.Sc. (Bio-Tech)

Time : Three Hours]

[Maximum Marks : 50

**Note : Attempt all questions in Section-A, two questions
from Section-B and three questions from
Section-C.**

Section-A

1. Write short notes on following : $5 \times 2 = 10$

- (i) Hazardous waste.**
- (ii) Weed control and herbicides.**
- (iii) Growth curve in Microbes**
- (iv) Define Antibiotics. Name three antibiotics**
- (v) Biofertilizers**

NP-3338

[P.T.O.]

(2)

Section-B

5×2=10

2. (i) Sterilization techniques in 'Microbes'.
- (ii) Draw labelled diagram of two fermenters.
- (iii) Write basic steps involved in producing single cell proteins (SCP).
- (iv) Write biotechnical advances in control of pollution through GEMs

Section-C

10×3=30

3. What is 'Sewage' ? Mention the role of Micro-organisms in decomposition of sewage and other waste materials.
4. How is Enzyme 'Pectinase' produced ? What are the uses of PECTINASES.

or

How are Enzyme Lipase and proteases produced ?
What are their applications ?

5. Give the diagram for commercial production of 'GLYCEROL' and Explain.

NP-3338

(3)

6. What do you know about "Probiotic foods". Explain in detail taking at least three examples of probiotic food.
7. What is pollution ? What role microbes can play in controlling the pollution.

or

What is Biodegradation and Bioremediation what is the role of Microbes in this process ?

NP-3338

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Roll No. ~~190935227015~~

M.Sc.(Bio-Tech.)-III Sem.

NP-3338

M.Sc. (Bio-Tech.) Examination, Dec. - 2020

Microbial, Industrial and Environmental

Biotechnology

(H-301)

M.Sc. (Bio-Tech)

Time : Three Hours]

[Maximum Marks : 50

Note : Attempt questions from **all** Sections
as per instructions.

Section - A

(Very Short Answer Questions)

Note : Attempt all the **five** questions. Each
question carries 2 marks. $2 \times 5 = 10$

- ✓ 1. Comment upon Shake-Flask
Fermentation. 2
- ✓ 2. Write a short note on Biogas. 2
- ✓ 3. Comment upon "use of microbes as bio
pesticides". 2

P.T.O.

4. Define the term apoenzyme, holoenzyme and metallo-enzyme. 2
5. Write a short note on desulphurisation of coal. 2

Section - B

(Short Answer Questions)

Note : Attempt any **two** questions from this section. Each question carries 5 marks.

6. Write a detailed note on isolation of micro-organisms. 5
7. Write a detailed note on safety and regulatory aspects of enzymes. 5
8. Comment upon biodegradation of xenobiotic compounds. 5

Section - C

(Detailed Answer Questions)

Note : Attempt any **three** questions from this section. Each question carries 10 marks.

9. Define waste and pollutant. Briefly describe the various sources of wastes and process of sewage treatment. 10

NP-3338/2

10. Write detailed note on the following:

5 each

- (a) Microbial production of acetone.
- (b) Uses of enzymes in food and food industry.

11. Define sterilization. Briefly describe the different techniques of sterilization used in industrial production processes. 10
12. What is bioremediation? How it can be used to reduce pollution. 10
13. Discuss in detail the procedure of microbial production of ethanol on large scale. 10
14. Discuss briefly the process of SCP production. Also discuss the advantages of producing SCP over traditional methods of producing proteins. 10

NP-3338/3

2. Name three useful micro-organisms and write their important characteristics.
3. Explain SCP and write about its sources.
4. Draw a typical bacterial growth curve and label various phases.
5. Name microorganisms used for commercial production of citric acid, lactic acid and gluconic acid.

Section - B

(Short Answer Questions)

Note : Attempt any **one** questions out of the following 3 questions. Each question carries 10 marks. Short answer is required not exceeding 200 words.

1×10=10

6. Name three foods that are prepared by microbial fermentations. Describe the role of microorganisms in each example.
7. Differentiate between generalized transduction and specialized transduction.

NP-3338(CV-III)/2

8. Discuss the industrial production of amylase enzyme using microorganisms.

Section - C

(Detailed Answer Questions)

Note : Attempt any **two** questions out of the following 5 questions. Each question carries 15 marks. Answer is required in detail. $2 \times 15 = 30$

9. Write a critical account of role of microbes in bioconversions of waste for fuel and energy.
10. What are transposons? How does transposition usually occur in bacteria and what happens to the target site?
11. Describe in detail about the commercial production of penicillin.
12. What is Lac Operon and Tryptophan Operon? Explain the mechanism of regulation of enzyme synthesis in bacteria.

NP-3338(CV-III)/3

P.T.O.