

A (Printed Pages 4)
(20222) Roll No.
M.Sc.(Bio-Tech.)-III Sem.

NP-3338 (CV-III)

M.Sc. (Bio-Tech.) Examination, Dec.-2021

Microbial, Industrial and Environmental

Bio-Technology

(H-301)

M.Sc. (Bio-Tech)

Time : 1½ Hours] [Maximum Marks : 50

Note : Attempt **all** the Sections as per instructions.

Section - A

(Very Short Answer Questions)

Note : Attempt any **two** questions. Each question carries 5 marks. Very short answer is required not exceeding 75 words. $2 \times 5 = 10$

1. What are biofertilizers? Compare them with chemical fertilizers.

P.T.O.

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.

13. Write in detail about commercial production of amino acids using microbes.

A

(Printed Pages 4)

(20222)

Roll No.

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

NP-3339 (CV-III)

M.Sc. (Biotechnology)

Examination, Dec.-2021

CONCEPTS TO NANO-BIOTECHNOLOGY

[H-302 (M.Sc. Biotech.)]

Time : 1½ Hours]

[Maximum Marks : 50

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

Section-A

(Very Short Answer Questions)

Note : Attempt any **two** questions. Each
question carries 5 marks. Very short
answer is required not exceeding 75
words. $5 \times 2 = 10$

1. TEM Grid
2. Assembly of DNA molecules

P.T.O.

3. Write full form of SEM, STM and AFM.
4. Write about molecular motors and their use in nanoscience.
5. How quantum dots are useful in biology?

Section-B

(Short Answer Questions)

Note : Attempt any **one** question from this section. Each question carries 10 marks. Short answer is required not exceeding 200 words. $1 \times 10 = 10$

6. Discuss in brief the different applications of electrical manipulations of DNA on metal surface.
7. Explain the preparation and characterization of Q-cds/pUCLen⁴ samples.

NP-3339(CV-III)/2

8. Explain the methods of biosynthesis of nano-particles and their characterization.

Section-C

(Detailed Answer Questions)

Note : Attempt any **two** questions from this section. Each question carries 15 marks. Answer is required in detail.

$$2 \times 15 = 30$$

9. What do you mean by nano-particles? Discuss the application of nano-particles in cancer therapy.
10. Describe the various types of nano-elements for the delivery of material into viable cells.
11. What is nano-biotechnology? Explain its scope and applications compatible with environment.

NP-3339(CV-III)/3

P.T.O.

12. Write detailed note on the following:

(a) Explain the different safety tests carried out in nano-technology.

(b) Explain different societal and ethical issues from nano products application.

13. Explain the methods of controlled drug delivery using nano-particle.

(Printed Pages 4)

(20222)

Roll No.

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

NP-3340 (CV-III)

M.Sc. (Biotechnology)

Examination, Dec. - 2021

Animal Biotechnology and Immunology

(H-303)

(M.Sc. Bio-Tech.)

Time : 1½ Hours]

[Maximum Marks : 50

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

Section-A

(Very Short Answer Questions)

Note : Attempt any **two** questions. Each
question carries 5 marks. Very short
answer is required. $2 \times 5 = 10$

1. Spleen

P.T.O.

2. Difference between Humoral and cell mediated immunity
3. RIA
4. Structure of IgG
5. Interferen

Section-B

(Short Answer Questions)

Note : Attempt any **one** question. Each question carries 10 marks. Short answers are required. $1 \times 10 = 10$

6. Write a note on Antigen-Antibody interaction.
7. What is cell culture? How the cells are maintained in culture and what are the different kinds of cell culture media?

8. Write short notes on-

- (a) Ethical and social issues related to human cloning.
- (b) B lymphocytes

Section-C

(Detailed Answer Questions)

Note : Attempt any **two** questions. Each question carries 15 marks. Long answers are required. $2 \times 15 = 30$

9. Write in detail on major Histocompatibility Complex (MHC) and complements.

10. Write notes on:-

- (a) Somatic cell fusion
- (b) Auto immune diseases

11. What is Embryo transfer technology?
What are the application of Embryo transfer technology?

12. Write an essay on Antigen-Antibody Interactions?

NP-3340(CV-III)/3

P.T.O.

13. What is Hybridoma technology? What is the method for the production of monoclonal antibodies? What are the applications of Monoclonal Antibodies?

A

(Printed Pages 4)

(20222)

Roll No.

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

NP-3341 (CV-III)

M.Sc. (Biotechnology)

Examination, Dec. - 2021

GENOMICS AND PROTEOMICS

[(H-304) M.Sc. (Biotech.)]

Time : 1½ Hours]

[Maximum Marks : 50

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

Section - A

(Very Short Answer Questions)

Note : Answer any **two** questions. Each
question carries **5** marks. Very short
answer is required. $2 \times 5 = 10$

1. What do you understand by Protophenome
and RNA world?

P.T.O.

2. What is clone by clone sequencing?
3. What is shotgun sequencing?
4. What is the use of SNP in pharmacogenomics?
5. What are protein chips?

Section - B

(Short Answer Questions)

Note : Answer any **one** question from this section. Each question carries 10 marks. Short answer is required.

1×10=10

6. Write a detail note on MALDI.
7. Comment upon Drug toxicology.
8. Genome sequencing.

Section - C

(Detailed Answer Questions)

Note : Answer any **two** questions from this section. Each question carries 15

NP-3341(CV-III)/2

marks. Answer is required in detail.

2×15=30

9. Describe in detail about yeast two hybrid system and their applications.
10. Describe the role of proteomics in cancer research.
11. Write note on
 - (a) Genetic maps
 - (b) Physical maps
 - (c) Transcript maps
 - (d) Functional maps
12. Write a detail note on
 - (a) Arabidopsis genome
 - (b) Human genome

NP-3341(CV-III)/3

P.T.O.

13. Give a detail account on "How Genomes Evolve".