D 10575 (Pages : 2) Name..

Reg. No...................................

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Biotechnology

BTY 5D 01—INTRODUCTION TO BIOTECHNOLOGY

(2019 Admissions)

Time : Two Hours   Maximum : 60 Marks

Draw diagrams wherever necessary.

Section A

*Answer at least **eight** questions.*
Each question carries 3 marks.
All questions can be attended.
Overall Ceiling 24.

1. What is Golden rice ?

2. Define recombinant DNA.

3. What are vectors ?

4. Define biotechnology.

5. What are sparkling wines ?

6. What is Btbrinjal ?

7. What is PCR ?

8. What are DNA vaccines ?

9. What are artificial seeds ?

10. What is gene gun technology ?

11. Comment on Covishield vaccine.

12. Comment on SCP.

(8 × 3 = 24 marks)

Section B

*Answer at least **five** questions.*
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.

13. Explain the production of Yoghurt.

14. What are probiotics ? Explain with an example.

Turn over

15. What are the different fermented food of Indian cuisine ?

16. What is DNA finger printing ? How is paternity determined ?

17. What are the pros and cons of genetically modified food ?

18. What are the different species of mushroom that can be cultured ? What is the procedure of spawn production ?

19. What are the different stages of bread production ?

(5 × 5 = 25 marks)

Section C

Answer any **one** *question.*
The question carries 11 *marks.*

20. What are the applications of transgenic plants ?

21. r DNA technology has revolutionised medicine. Substantiate the statement.

(1 × 11 = 11 marks)

D 10574

Name......................................

Reg. No..............................

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Biotechnology

BTY 5B 09—BIOPROCESS TECHNOLOGY

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answer Type Questions)

Answer at least **eight** *questions.*
Each question carries 3 marks.
All questions can be attended.
Overall Ceiling 24.

1. Reverse osmosis.

2. Flocculation.

3. Protoplast fusion.

4. H value L volume products.

5. CSTR.

6. SCP.

7. Bioassay.

8. Primary stock culture.

9. Structure of Pencillin.

10. Amylases.

11. Auxotrophic mutant.

12. Chemostat.

(8 × 3 = 24 marks)

Turn over

Section B

Answer at least **five** *questions.*
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.

13. A typical Bioreactor and its parts.

14. Methods of immobilization.

15. Stock culture preservation.

16. Cell disruption methods.

17. Acetic acid fermentation.

18. Kinetics of batch culture.

19. Media formulation in fermentation.

(5 × 5 = 25 marks)

Section C

Answer any **one** *question.*
The question carries 11 marks.

20. Explain different strategies for strain improvement.

21. Describe the batch and continues culture and discuss the merits and demerits of each.

(1 × 11 = 11 marks)

D 10573

(Pages : 2)

Name...

Reg. No.......................................

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Biotechnology

BTY 5B 08—IMMUNOLOGY AND IMMUNOTECHNOLOGY

(2019 Admissions)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answer Type Questions)

Answer atleast **eight** *questions.*
Each question carries 3 marks.
All questions can be attended.
Overall Ceiling 24.

1. Anaphylaxis.

2. Humoral Immunity.

3. Phagocytes.

4. MALT.

5. Adjuvants.

6. SCID.

7. HLA.

8. Allotype and Idiotype.

9. Hashimoto's disease.

10. TNF.

11. Flow cytometry.

12. Recombinant vaccine.

(8 × 3 = 24 marks)

Turn over

Section B (Paragraph Type Questions)

Answer atleast **five** *questions.*
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.

13. What are the factors affecting immunogenicity.

14. Describe the classical pathway of compliment activation.

15. What are immuno toxins ? How it is use full to treat human diseases.

16. Give a brief note on systemic autoimmune diseases.

17. Describe the principle, and applications of western blotting.

18. Discuss different passive immunization methods.

19. Describe the nature and properties of an antigen.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

Answer any **one** *questions.*
The question carries 11 marks.

20. Describe different types of antigen and antibody interactions.

21. Explain any four advanced immunological techniques employed for disease diagnosis.

(1 × 11 = 11 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS—UG)

Biotechnology

BTY 5B 07—MOLECULAR BIOLOGY

(2019 Admissions)

Time : Two Hours
Maximum : 60 Marks

Section A (Short Answers)

*Answer at least **eight** questions.*
Each question carries 3 marks.
All questions can be attended.
Overall Ceiling 24.

1. What is teminism ?

2. What are operons ?

3. What are the different types of chromosomes ?

4. Discuss the architecture of nucleosomes.

5. What are Okazaki fragments ?

6. Write short note on preinitiation complex.

7. Comment on Inteins.

8. What is peptide bond formation ?

9. Write short note on Transposition.

10. What are constitutive genes ?

11. Comment on pseudogenes.

12. Write a note on the enzymes involved in eukaryotic replication.

(8 × 3 = 24 marks)

Section B (Paragraph)

*Answer at least **five** questions.*
Each question carries 5 marks.
All questions can be attended.
Overall Ceiling 25.

12. Differentiate between Prokaryotic and Eukaryotic genes.

13. Write a note on Hershey- Chase experiment.

Turn over

14. Discuss the importance of alternate splicing.

15. Write a short note on types of histones.

16. Write notes on structure of B DNA.

17. Write a note on Post transcriptional gene silencing mechanism.

18. Write a note on different types of RNA.

(5 × 5 = 25 marks)

Section C (Essay Type)

Answer any **one** *question.*
The question carries 11 *marks.*

19. Write an essay on Chaperons and their role in Post Translational Modifications.

20. Write an essay on DNA repair mechanisms.

(1 × 11 = 11 marks)

D 10120

(Pages : 2)

Name.......................................

Reg. No................................

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Biotechnology

BTY 5D 01—INTRODUCTION TO BIOTECHNOLOGY

Time : Two Hours

Maximum : 40 Marks

Section A

Answer any **one** *out of two questions in about 750 words.*
The question carries 10 marks.

1. Explain about the applications of biotechnology in the diagnosis of diseases.

2. Write about any *five* fermented food products with its specialties.

(1 × 10 = 10 marks)

Section B

Answer any **four** *out of eight questions in about 500 words.*
Each question carries 5 marks.

3. What are restriction endonucleases ?

4. Explain about biopesticides.

5. Write note on SCP.

6. What are the basic parts of a fermenter ?

7. Explain about the various methods of gene transfer in a plant cell.

8. Explain about the advantages and disadvantages of continuous fermentation.

9. Write note on gene therapy.

10. Write note on vectors.

(4 × 5 = 20 marks)

Turn over

Section C

Answer **all** *questions in about* 200 *words.*
Each question carries 2 marks.

11. Define GM foods.

12. What are edible vaccines ?

13. What is protoplast fusion ?

14. What are impellers ?

15. What are linkers ?

(5 × 2 = 10 marks)

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Biotechnology

BTY 5B 09—BIOPROCESS TECHNOLOGY

Time : Three Hours
Maximum : 80 Marks

Section A

Answer any **two** *out of four questions in about* 1,500 *words.*
Each question carries 10 *marks.*

1. Describe the fermentative production, purification and application of fungal amylases.

2. Explain various strain improvement strategies employed for industrial strain.

3. Explain the batch, fed batch and continuous fermentation. Discuss the advantages and disadvantages of each system.

4. Explain in detail fermentative production of penicillin and its recovery.

(2 × 10 = 20 marks)

Section B

Answer any **seven** *out of fourteen questions in about* 750 *words.*
Each question carries 5 *marks.*

5. Describe different cell separation methods.

6. With the help of diagram explain CSTR.

7. Explain the isolation and screening of organic acid producers from soil.

8. Discuss different media sterilization of fermentation.

9. What are the strategies adopted for media formulation in bioprocess ?

10. Give an account on fermentation economics.

11. Explain fermentative production and purification of Vitamin B_{12}.

12. Discuss in detail industrial production of ethanol.

13. Explain different cell disruption methods.

Turn over

14. Describe immobilized bioreactors and discuss its merits and demerits.

15. Discuss the application of rDNA technology in fermentation.

16. Explain isolation of industrially useful microbe from air.

17. Explain the structure and function of airlift bioreactor.

18. Explain fermentation process control.

(7 × 5 = 35 marks)

Section C

*Answer **all** questions in about 300 words.*
Each question carries 3 marks.

19. Discuss the industrial application of bacterial and fungal proteases.

20. Give a note on High-Fructose Corn Syrup.

21. What are the factors effecting microbial growth ?

22. Discuss different continuous culture methods and merits and demerits of each.

23. Fermentation is a food preservation method". Explain.

(5 × 3 = 15 marks)

Section D

*Answer **all** questions in about 200 words.*
Each question carries 2 marks.

24. Anti foam agents.

25. Solvent extraction

26. RBC.

27. Membrane filtration.

28. Salting out.

(5 × 2 = 10 marks)

D 10118

Name.......................................

Reg. No...............................

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Biotechnology

BTY 5B 08—IMMUNOLOGY AND IMMUNOTECHNOLOGY

Time : Three Hours

Maximum : 80 Marks

Section A

Answer any **two** *out of four questions in about* 1,500 *words.*
Each question carries 10 *marks.*

1. Explain the nature and properties of antigens.

2. Describe the different types of hypersensitivity.

3. Write a note on autoimmune diseases.

4. Discuss the immunology of malignancy.

(2 × 10 = 20 marks)

Section B

Answer any **seven** *out of fourteen questions in about* 750 *words.*
Each question carries 5 *marks.*

5. Describe the different classes of immunoglobulins.

6. How is RID performed.

7. Describe the structure and functions of lymph nodes.

8. Write a note on phagocytic cells.

9. Explain hybridoma technology.

10. Describe Western blotting.

11. Write a note on vaccines.

12. What are cytokines ?

13. Write a note on immunotherapy of cancer.

14. Explain isotypic, allotypic and idiotypic determinants in immunoglobulins.

Turn over

15. What are the T cell subsets ?

16. Explain innate immunity.

17. What were the milestones in the history of development of vaccines ?

18. Outline the principle and procedure of ELISA.

(7 × 5 = 35 marks)

Section C

Answer all questions in about 300 words.
Each question carries 3 marks.

19. What are null cells ?

20. What is serum sickness ?

21. What are immunotoxins ?

22. What are interferons ?

23. Write briefly on multiple sclerosis.

(5 × 3 = 15 marks)

Section D

Answer all questions in about 200 words.
Each question carries 2 marks.

24. What are super antigens ?

25. What is Ouchterlony procedure ?

26. What are anaphylatoxins ?

27. What is LATS ?

28. What are tumour specific antigens ?

(5 × 2 = 10 marks)

D 10117 (Pages : 2) Name......................................

Reg. No................................

FIFTH SEMESTER U.G. DEGREE EXAMINATION, NOVEMBER 2021

(CUCBCSS—UG)

Biotechnology

BTY 5B 07—MOLECULAR BIOLOGY

Time : Three Hours Maximum : 80 Marks

Section A

Answer any **two** *out of four questions in about* 1,500 *words.*
Each question carries 10 *marks.*

1. Give an account on the packaging of genetic material?

2. What is semi-conservative Replication? Explain the enzymes involved in Eukaryotic replication.

3. Explain the post transcriptional modification of mRNA, tRNA and rRNA ?

4. Explain the regulation of Gene regulation taking Trp operon as example.

(2 × 10 = 20 marks)

Section B

Answer any **seven** *out of fourteen questions in about* 750 *words.*
Each question carries 5 *marks.*

5. Write Avery, Macleod and McCarty experiment and its interpretation.

6. What is DNA supercoiling ?

7. Discuss on the type of Nucleosome model.

8. Explain briefly on Mitochondrial genome.

9. What are overlapping genes ?

10. Give an account on Psuedogenes.

11. Explain IS elements.

12. Write four different types of mutation.

13. Explain alternative splicing.

14. What are the features of Genetic code ?

Turn over

15. Explain synthesis of protein.

16. Explain C-Value paradox with appropriate examples.

17. Write briefly on retroposons.

18. Give an account on site specific and homologous recombination.

(7 × 5 = 35 marks)

Section C

Answer **all** *questions in about* 300 *words.*
Each question carries 3 marks.

19. Explain the types and functions of topoisomerses ?

20. Explain briefly on central dogma.

21. What are features of tRNA.

22. Explain the role of E site in protein synthesis ?

23. What are proteasomes ?

(5 × 3 = 15 marks)

Section D

Answer **all** *questions in about* 200 *words.*
Each question carries 2 marks.

24. What is Watson and Crick base pairing ?

25. Differentiate between transition and transversion.

26. What is Wobble hypothesis ?

27 Write the role of Sigma factor.

28. What is Klenow fragment ?

(5 × 2 = 10 marks)