D 92920 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Biotechnology

BTY 3C 04—PLANT BIOTECHNOLOGY

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. What is embryo rescue.
2. Any *two*-disinfecting agent used in plant tissue culture.
3. What is soma clonal variation ?
4. Endosperm culture.
5. Chemically undefined media.
6. What is Cybrid ?
7. Ti plasmid.
8. Hairy root culture.
9. Somatic embryo.
10. Green house.
11. Binary Vector.
12. Golden rice.

(8 × 3 = 24 marks)

Section B (Paragraph Type Questions)

Answer at least **five** *questions.*

Each question carries 5 *marks.*

All questions can be attended.

Overall Ceiling 25.

13. Surface sterilization of explant.
14. Micropropagation and its applications.
15. Anthogenesis.
16. Growth regulators in plant tissue culture.
17. Explain viral vector mediated gene transfer in plants.
18. Use of protoplast for genetic transformation and somatic hybridization .
19. Discuss about natural medias employed in plant tissue culture.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

Answer any **one** *question.*

Each question carries 11 *marks.*

20. Explain plant protoplast culture, isolation and fusion.
21. Describe direct gene transfer methods in plants.

(1 × 11 = 11 marks)

D 92919 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2020

Biotechnology

BTY 3C 03—ENVIRONMENTAL BIOTECHNOLOGY

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. Bioventing.
2. Greenhouse effect.
3. Xenobibtics.
4. Co -Metabolism.
5. Vermicomposting.
6. Bio-agumentation.
7. Biopile system.
8. Bioaccumulation.
9. Bio scrubbers.
10. Stabilization pond
11. Phyto remediation.
12. Heap technique.

(8 × 3 = 24 marks)

Section B (Paragraph Type Questions)

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

13. Discuss about of effects of Air pollution.
14. Discuss the disposal and management of medical waste.

Turn over

15. Expalin the biodegradation of phenolic compounds.

16. Biological removal of air pollutants

17. Discuss the merits and demerits of bioaugmentation.

18. Explain the solid waste management by vermicomposting.

19. Briefly explain the process of methanogenesis.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

Answer any **one** *question.*

Each question carries 11 *marks.*

20. Describe types of bioremediation and advantages and disadvantages of each

21. Discuss the different sources of air pollution and its effect in the environment.

(1 × 11 = 11 marks)

D 92918 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020

Biotechnology

BTY 3B 03—BIOCHEMISTRY

Time : Two Hours Maximum : 60 Marks

Section A

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

1. Mention the importance of UDP-glucose in metabolism.
2. What are non-protein amino acids ?
3. What is the function of SDS in SDS-PAGE ?
4. What are Phytohormones ? Give examples.
5. Define Km and V max.
6. What is the importance of Henderson-Hasselbalch equation ?
7. Name two steroids and mention their importance.
8. Distinguish between glycolysis and gluconeogenesis.
9. Name any *two* physiological buffer system and explain their buffering action.
10. What are Triglycerides ?
11. What happens your daily intake of water-soluble vitamins exceeds your daily requirement ?
12. How do isoenzymes differ from each other ?

(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. What are the factors that affect enzyme activity ?
14. Give an idea about the structural organization in proteins.
15. What is the physiological relevance of fat-soluble vitamins ?
16. Write a note on enzyme inhibition.
17. Write a note on different classes of carbohydrates.
18. Give an idea about the structure of B-DNA.
19. Explain the functions and deficiency disorders associated with a) Insulin ; and b) Growth hormone.

(5 × 5 = 25 marks)

Section C

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

20. How does electron transport chain assist in ATP synthesis ?
21. Write an essay on the different types of chromatography.

(1 × 11 = 11 marks)

D 91681 **(Pages : 2)** **Name**.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2020

Biotechnology

BTY 3B 03—BIOCHEMISTRY

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. Elaborate the different types of chromatographic techniques used for the separation of bio-molecules.
2. Write an essay on the nature and function of Kerb's cycle.
3. Explain in detail about enzyme action and derive the Michaelis-Menten equation.
4. Describe the salient structural feature of DNA.

(2 × 10 = 20 marks)

Section B

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

5. Write a brief note on oxidative phosphorylation.
6. Write a note on buffer action in biological system.
7. Explain the role of pyruvate in alcoholic fermentation.
8. Discuss about amphoteric property of amino acids.
9. Explain the degradation pathway of glycine.
10. Give an account on biological function of proteins.
11. Discuss about structural organization of purine and pyrimidine.
12. Give an account on various types of DNA.
13. Explain about allosteric enzymes.
14. Explain about α-helix and β-pleated sheets.

Turn over

15. Discuss about the action of thyroxine.

16. Give an account on Isoenzyme.

17. Explain the factors that affect enzyme action.

18. Discuss the general chemical reaction of amino acids.

(7 × 5 = 35 marks)

Section C

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

19. Write about biological significance of TAG.

20. Draw the structure of cholesterol and mention its biological function.

21. Write the major functions of Vitamin-C

22. What are Hormones ? Give an example.

23. Draw the structure of ATP synthase. Give its function.

(5 × 3 = 15 marks)

Section D

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

24. Give the structure of purine bases.

25. What are phytohormones ?

26. Define-Buffer.

27. Draw the structure of Lecithin.

28. What is enzyme inhibition ?

(5 × 2 = 10 marks)

D 12000 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION
NOVEMBER 2021

Biotechnology

BTY 3C 04—PLANT BIOTECHNOLOGY

(2019—2020 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. Cybrid.
2. Shoot tip culture.
3. Co integrate vector.
4. Sodium hypochlorite.
5. Neomycin phosphotransferase gene.
6. 35s promoter.
7. Bt cotton.
8. Electoporation.
9. Embryo rescue.
10. Cytokinins.
11. Molecular farming.
12. Any *two* special media used in plant tissue culture.

(8 × 3 = 24 marks)

Section B (Paragraph Type Questions)

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

13. Use of protoplast for genetic transformation and somatic hybridization.
14. Explain protocol of surface sterilization of explant.
15. Explain how herbicide resistance developed in plant through plant transformation.
16. Discuss the role of growth regulators in the medium.
17. Somaclonal variation &its application in plant breeding.
18. Explain different methods to develop virus free plant.
19. Explain callus culture and its applications.

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

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

20. Explain plant protoplast isolation, culture and fusion methods.
21. Describe different methods of micropropagation.

(1 × 11 = 11 marks)

D 11999 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

Biotechnology

BTY 3C 03—ENVIRONMENTAL BIOTECHNOLOGY

(2019—2020 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. What is Metacleavage ?
2. What is the composition of biogas ?
3. State any *two* the ecological effects of naphthalene.
4. What is domestic waste ?
5. What are catabolic plasmids ?
6. What are Windrows ?
7. What is Bioventing ?
8. Sanitary land fills.
9. Zero emission vehicle.
10. What are Biofilters ?
11. What is carbon footprint ?
12. CNG ?

(8 × 3 = 24 marks)

Section B (Paragraph Type Questions)

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

13. Explain the biodegradation of urea.
14. Biosystems of air pollution remediation.
15. What are the Reasons of global warming ?
16. Explain medical waste treatment.
17. State the role of remote sensing in bioremediation detection.
18. Explain the steps of vermitechnology.
19. What is in situ bioremediation ?

(5 × 5 = 25 marks)

Section C (Essay Type Questions)

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

20. Explain how micro-organisms are effective in the treatment of petrochemicals.
21. Discuss the steps of biogas production.

(1 × 11 = 11 marks)

D 11998 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION, NOVEMBER 2021

Biotechnology

BTY 3B 03—BIOCHEMISTRY

(2019—2020 Admissions)

Time : Two Hours Maximum : 60 Marks

Section A

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

1. Mention the importance of disulfide linkages in proteins.
2. What is meant by 'alcohol fermentation' ?
3. What is the importance of Urea cycle ?
4. Give an example where competitive inhibitor is acting as a drug.
5. Mention two biological functions of lecithin.
6. Distinguish between the structures of purines and pyrimidines.
7. Name a condition associated with thyroxine deficiency.
8. What are isoenzymes ? Give an example.
9. Give an idea on the role of proteins in buffering.
10. Mention the committed step of fatty acid biosynthesis.
11. What do you mean by isoelectric point ?
12. Give an example for substrate-level phosphorylation.

(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. Discuss the structure and functions of vitamin A.
14. Give an idea about phytohormones.

Turn over

15. Derive Michaelis-Menten equation and mention the significance of Km and Vmax.

16. Distinguish between ion-exchange and affinity chromatographic separations.

17. What is the importance of allosteric enzymes ?

18. What are the differences between A-DNA, B-DNA and Z-DNA ?

19. Cholecalciferol is both a vitamin and a hormone. What is your opinion ? Give reasons your opinion.

(5 × 5 = 25 marks)

Section C

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

20. Discuss the biological functions of proteins in our body.

21. Give an idea about different types of electrophoresis. Mention the importance of electrophoretic methods in life science research.

(1 × 11 = 11 marks)

D 11816 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION NOVEMBER 2021

Biotechnology

BTY 3B 03—BIOCHEMISTRY

(2014—2018 Admissions)

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 functions of various hormones in maintaining homeostasis.
2. Classify enzymes based on IUBMB recommendations. Explain the different mechanisms of enzyme action.
3. Describe the flow of electrons through different electron carrying complexes and consequential ATP synthesis in mammalian mitochondrion.
4. Discuss about the importance of different types of electrophoresis in biology.

(2 × 10 = 20 marks)

Section B

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

5. Write a note on secondary structure of proteins.
6. Discuss about the physiologic buffers important in maintaining the intercellular and intracellular pH.
7. Explain the significance of Urea cycle.
8. Most of the water-soluble vitamins are precursors of important co-enzymes. Write your opinion about the comment.
9. What are the different factors that affect enzyme action?
10. Write a note on phospholipids and their importance.

11. Distinguish between gel filtration and ion-exchange chromatography.
12. What would be the fate of pyruvate formed after glycolysis, in aerobic and anaerobic conditions?
13. Discuss about the structure of DNA.
14. Give an idea about the amphoteric nature of amino acids.
15. Derive Michaelis-Menten equation.
16. Discuss about the different functions of protein in our body.
17. Mention the major functions of any two growth promoting phytohormones.
18. Discuss about the co-ordinated regulation of glycolysis and gluconeogenesis.

(7 × 5 = 35 marks)

Section C

Answer **all** *questions in about* 300 *words.*

Each question carries 3 *marks.*

19. Give an idea about the structure of purines and pyrimidines present in RNA.
20. List out the different stabilizing forces in protein structure.
21. Explain the significance of pentose phosphate pathway.
22. Give an idea about DNA polymorphism.
23. Distinguish between competitive and uncompetitive enzyme inhibition.

(5 × 3 = 15 marks)

Section D

Answer **all** *the questions in about* 200 *words.*

Each question carries 2 *marks.*

24. What are the characteristic features of a peptide bond ?
25. What is meant by substrate-level phosphorylation ?
26. Explain the importance of Henderson-Hasselbalch equation.
27. What do you mean by allosteric enzymes ? Give example.
28. Define the term Rf value.

(5 × 2 = 10 marks)