

**BIOCHEMISTRY**

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

SECTION – A**Answer ALL Questions :****(10 × 2 = 20)**

1. Define Phospholipids.
2. Define isoenzymes.
3. Comment on glycolysis.
4. Comment on Deamination.
5. Define Transdeamination.
6. Comment on Omega3.
7. Mention the Glutamate family of aminoacids.
8. Comment on Z-DNA.
9. Define Polysaccharides.
10. Comment on Vitamin A.

SECTION – B**Answer ALL Questions :****(5 × 5 = 25)**

11. a) Comment on Vitamin C and D

(OR)

- b) Write a brief account on the structure of fatty acids.

12. a) Give a brief account on Glycogenesis.

(OR)

- b) Write about the metabolism of Uronic acid.

13. a) Comment on Transmethylation.

(OR)

- b) Comment on Ornithine Cycle.

14. a) Explain briefly the metabolism of ketone bodies.

(OR)

- b) Comment on Steroid hormones.

15. a) Comment on Purine synthesis.

(OR)

- b) Discuss briefly the various classes of RNA.

SECTION – C**Answer any THREE Questions :****(3 × 10 = 30)**

16. Give an account on the metabolic role of hormones.
17. Write a detail account on HMP pathway.
18. Write about the metabolism of Pyruvate family of aminoacids.
19. Give an account on metabolism of Cholesterol.
20. Explain the biosynthesis of Pyrimidine.



**CELL AND MOLECULAR BIOLOGY**

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

SECTION – A**Answer ALL Questions:****(10 × 2 = 20)**

1. Give the unit membrane concept.
2. What are ETP particles?
3. Brief the signal hypothesis.
4. Show the importance of autophagy.
5. Bring out the phases of cell cycle.
6. Enlist the components of mitotic apparatus.
7. Write a note on RFLP.
8. Comment of deciphering the code.
9. What is splicing mechanism?
10. Why regulatory genes are significant?

SECTION – B**Answer ALL Questions:****(5 × 5 = 25)**

11. a) What is intercellular communication and add a note on its various types?

(OR)

- b) Elucidate the mechanism of oxidative phosphorylation.

12. a) How the proteins are transported by Golgi complex?

(OR)

- b) Classify the lysosomal enzymes.

13. a) In detail give the molecular organisation of a chromosome.

(OR)

- b) Define cancer and discuss its causes.

14. a) Analyze the denaturation of DNA.

(OR)

- b) Prove the replication of DNA with reference to meselson and stahl experiment.

15. a) Bring out the steps involved in initiation of polypeptide chain.

(OR)

- b) Examine the Lac operation in E. Coli.

SECTION – C**Answer any THREE Questions:****(3 × 10 = 30)**

16. Oxidation of pyruvic acid to carbon dioxide and water takes place by Kreb's cycle – Justify.
17. Highlight the structure and types of endoplasmic reticulum.
18. Evaluate the cell aging.
19. Enzymes play a major role in replication – Substantiate.
20. Elaborate the gene regulation in eukaryotes.



**MICROBIOLOGY**

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

SECTION – A**Answer ALL Questions:****(10 × 2 = 20)**

1. Archaeobacteria
2. Phaginae
3. Budding
4. Enriched medium
5. Transient microflora
6. Mycotoxicosis
7. Methanogenesis
8. Biological parameters on water sample
9. Potable water
10. Rancidity

SECTION – B**Answer ALL Questions:****(5 × 5 = 25)**

11. a) write a short note on Whittaker's five kingdom concept.

(OR)

- b) Point out the salient features of *E. Coli*.

12. a) How microbes are classified based on their mode of nutrition?

(OR)

- b) What is sterilization? Add a note on heat sterilization.

13. a) Discuss the mode of transmission of diseases.

(OR)

- b) Describe tuberculosis and its control measures.

14. a) Explore the microorganisms in aquatic environment.

(OR)

- b) Briefly explain phosphorous cycle.

15. a) How microbes can be stored?

(OR)

- b) How do we prevent the food infection and poisoning?

SECTION – C**Answer any THREE Questions:****(3 × 10 = 30)**

16. Describe the structure and several features of algae with suitable examples.
17. Explain the bacterial growth curve and add a note on factors that may affect bacterial growth?
18. Write an elaborate note on poliomyelitis and its precaution methods.
19. How do we treat the sewage/Industrial effluent? Explain the methods.
20. What are the types of fermentation? Explain them with neat illustrations.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential)

[Affiliated to Madurai Kamaraj University]

M.Sc. Zoology Degree (Semester) Examinations, November 2017

Part – III : Core Subject : First Semester : Paper – I

BIOINFORMATICS

Under CBCS – Credit 5

Time: **3** Hours

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 2 = 20)

1. Central processing unit (CPU)
2. Super computer
3. TCP/IP – protocol.
4. HTML.
5. Biological database.
6. Gen bank.
7. BLAST.
8. Multiple Sequence Alignment.
9. Ramachandran plot
10. Proteomics.

SECTION – B

Answer ALL Questions:

(5 × 5 = 25)

11. a) Enumerate the applications of MS Office.

(OR)

- b) What are the components of a computer and comment.

12. a) Enumerate the steps involved in the creation of a web page using HTML. **(OR)**

- b) Differentiate Internet and Intranet with its application.

13. a) Write a note on primary DNA databases.

(OR)

- b) Write a note on the application of bioinformatics.

14. a) Explain pair wise sequence alignment.

(OR)

- b) Comment on the scoring matrices PAM and BLOSUM.

15. a) Explain any two protein secondary structure prediction methods.

(OR)

- b) Explain how the predicted structure of a protein is validated.

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

16. Explain how computers are being classified.

17. Discuss about a) e-mail.

- b) Computer Virus

18. Describe the types of protein sequence databases.

19. Explain gene prediction tools.

20. Explain the steps involved in protein structure prediction.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential)

[Affiliated to Madurai Kamaraj University]

M.Sc. Zoology Degree (Semester) Examinations, November 2017

Part – III : Core Subject : Third Semester : Paper – I

GENETICS

Under CBCS – Credit 4

Time: **3** Hours

Max. Marks: **75**

SECTION – A

Answer ALL Questions:

(10 × 2 = 20)

1. State Classical gene concept.
2. Define restriction map
3. Classify plasmids on the basis of function.
4. What are the characteristics of ideal plasmid vector.
5. How can early and late genes of phage be distinguished.
6. Comment on lytic cycle of λ phage.
7. What is frame shift mutation?
8. Differentiate deletion mutation from insertion mutation.
9. Bring out the eugenics measures for the improvement of existing human race.
10. What is HGP?

SECTION – B

Answer ALL Questions:

(5 × 5 = 25)

11. a) Discuss the fine structure of gene as revealed through the work of r11 locus in T₄ Bacteriophage.

(OR)

- b) Trace the steps involved in the construction of chromosome map.

12. a) Schematically represent various steps involved in the isolation of plasmid.

(OR)

- b) Briefly explain the mechanism of chromosomal transfer between Hfr and F⁻ bacteria.

13. a) Give an account of transposable elements.

(OR)

- b) Describe the structure of λ DNA

14. a) Consider tautomeric shift as an aspect of transition mutation.

(OR)

- b) Distinguish white house model from Holiday model involving heteroduplex DNA for recombination.

15. a) Summarize positive and negative Eugenic measures.

(OR)

- b) Highlight any 10 symbols used in pedigree analysis

SECTION – C

Answer any THREE Questions:

(3 × 10 = 30)

16. Examine in detail the techniques available for the isolation of genes.
17. Give an illustrative account of bacterial transformation.
18. Analyse specialized and generalized transduction.
19. Elucidate the mechanisms of DNA repair.
20. Write an essay on genetic basis of human Cancer.



**PHYSIOLOGY**

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

SECTION – A**Answer ALL Questions:****(10 × 2 = 20)**

1. Mention the applications of heat therapy.
2. Define bioelectricity.
3. What is Osmosis?
4. Define pulmonary ventilation.
5. Define Muscle Contraction.
6. What are Neurotransmitters?
7. Define Buoyancy.
8. Define Neuron.
9. Define Cardiac rhythms.
10. Comment on Blood flow.

SECTION – B**Answer ALL Questions:****(5 × 5 = 25)**

11. a) Comment on mega voltage therapy.
(OR)
b) Comment on Physiotherapy.

12. a) Define Cardiac cycle.

(OR)

- b) Briefly explain the counter current mechanism.

13. a) Comment on systemic circulation.

(OR)

- b) Define blood pressure.

14. a) Define inter neurons.

(OR)

- b) Write short notes on reflex action.

15. a) Write about the importance of electrolytes.

(OR)

- b) Explain about the hydrostatic pressure.

SECTION – C**Answer any THREE Questions:****(3 × 10 = 30)**

16. Give an account on haemo-dynamics.
17. Describe the organization of Nervous system.
18. Write about the physiology of receptors.
19. Discuss in detail about body fluids.
20. Write about the invertebrate hormone of reproduction.





VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential)

[Affiliated to Madurai Kamaraj University]

M.Sc. Zoology Degree (Semester) Examinations, November 2017

Part – III : Core Subject : Third Semester : Paper – III

PRINCIPLES OF BIOTECHNOLOGY

Under CBCS – Credit 4

Time: **3** Hours

Max. Marks: **75**

SECTION – A

Answer ALL Questions :

(10 × 2 = 20)

1. Comment on the term patent.
2. Comment on the ethical issues of biotechnology.
3. Specify any two applications of DNA ligases.
4. Differentiate exo – nuclease from endo – nuclease in their action.
5. Distinguish between T_i Plasmid and R – Plasmid.
6. Comment on the term selective markers.
7. Comment on RFLP.
8. Specify the applications of Microarray.
9. Highlight the importance of genomic library.
10. Enlist any two of advantages of gene cloning.

SECTION – B

Answer ALL Questions :

(5 × 5 = 25)

11. a) Give an account on bio – safety measures in DNA research activity. **(OR)**
- b) Describe the social and ethical issues in using of GMO.

12. a) Analyze the mode of action of DNA ligases.

(OR)

- b) Discuss about list of DNA modifying enzymes.

13. a) Evaluate the different steps involved in identification of r – DNA.

(OR)

- b) Expound the types of viral vectors in human gene therapy.

14. a) Describe the protocol for restriction mapping.

(OR)

- b) Summarize the procedure of southern blotting techniques to identify recombinants.

15. a) Explain how gene is transferred into host by electroporation method.

(OR)

- b) Write principle and applications of colony hybridization.

SECTION – C

Answer any THREE Questions :

(3 × 10 = 30)

16. Summarize scope and present status of biotechnology.
17. Critically analyse mode of action and advantages of restriction enzymes.
18. Enlist the different Cloning and expression vectors with cited example.
19. Critically examine procedure for DNA sequencing.
20. Discuss the procedure for construction of cDNA library.



**APPLIED BIOLOGY**

Under CBCS – Credit 5

Time: 3 Hours

Max. Marks: 75

SECTION – A**Answer ALL Questions:****(10 × 2 = 20)**

1. What is Paedogenesis?
2. Define Pest.
3. What is Risk Modelling?
4. Comment on Genetic counseling.
5. Define Plasmid.
6. Write about Invitro fertilization.
7. What is Hybridization?
8. What is Human growth hormone?
9. Comment on Containments.
10. What is Callus?

SECTION – B**Answer ALL Questions:****(5 × 5 = 25)**

11. a) Explain briefly the Soil profile.
(OR)
b) What are Vaccines? Write a brief note on Immunization schedule for Children.
12. a) What is SCP? Mention the uses of Single Cell Protein.
(OR)
b) Describe a Fermenter tank with a diagram.
13. a) Write an account on Directed gene sequencing method.
(OR)
b) Describe the possible dangers of Genetically engineered organisms.
14. a) Describe the Biotechnology behind production of Human growth hormones.
(OR)
b) Write a brief account of Live-stock management.
15. a) Discuss the biohazards of rDNA technology.
(OR)
b) Write a brief account on Colony Hybridization Technique.

SECTION – C**Answer any THREE Questions:****(3 × 10 = 30)**

16. Give an account on the Renewable and non-renewable energy resources.
17. Write an account on the Importance and Methods of Water Conservation.
18. Describe the Method of Plant tissue culture and its significances.
19. Explain the Methods of Embryo transfer technique with neat diagram.
20. Write an account on Gene Therapy.

