

**DEPARTMENT OF ZOOLOGY**

<b>Course Code:</b> 31CT11	<b>Programme:</b> M.Sc.,	<b>CIA:</b> I Test
<b>Date:</b> 04.09.2019	<b>Major:</b> ZOOLOGY	<b>Semester:</b> I
<b>Time:</b> 2Hrs	<b>Year:</b> I	<b>Maximum:</b> 50 Marks
<b>Course Title:</b>	<b>BIOCHEMISTRY</b>	

**SECTION – A**

**ANSWER ALL QUESTIONS (Multiple choice questions):** **(5 X1= 5 Marks)**

1. Name the carbohydrate formed by  $\alpha$  (1→4) linkage of glucose. CO1  
 a) Starch    b) Lactose    c) Glycogen    d) Trehalose
2. Keto acids are metabolites of CO3  
 a) Carbohydrate metabolism    b) Protein metabolism  
 c) Lipidmetabolism    d) Brain metabolism
3. \_\_\_\_ is the chief end product of amino acid metabolism CO3  
 a) Urea    b) Ammonia    c) Uric acid    d) All the above
4. \_\_\_\_ is a regulator of neuronal activity CO3  
 a) GABA    b) Alanine    c) Serine    d) Cystine
5. The inhibition of Glycolysis by oxygen is known as CO2  
 a) Crab tree effect    b) Pasteur effect    c) Haemolytic anaemia    d) Lactic acidosis

**SECTION – B**

**ANSWER ANY FIVE QUESTIONS (Very short answer):** **(5 X 2 =10 Marks)**

6. Discriminate aldehydes and ketones. CO1
7. Define anomeric carbon and  $\alpha$  carbon. CO1
8. Define Glycogenolysis CO2
9. Comment on Cori cycle CO2
10. What is meant by Transdeamination? CO3
11. Mention the role of GABA CO3
12. What do you mean by Metabolic pool? CO3

**SECTION – C**

**ANSWER ANY THREE QUESTIONS (Short answer):** **(3 X 5 = 15 Marks)**

13. Classify the monosaccharides citing examples with their molecular structure. CO1
14. Give an account on the properties of amino acids in primary, secondary and 3D structures of protein. CO1
15. Describe the Hexose monophosphate shunt and add a note on its significance. CO2
16. Describe the process of Oxidative deamination. CO3
17. Explain the metabolism of glutamate family of amino acids. CO3

**SECTION – D**

**ANSWER ANY ONE QUESTIONS(Long Answer):** **(2 X10=20 Marks)**

18. Critically comment on the bonding system in polysaccharides with appropriate illustrations through their molecular structures. CO1
19. Citric acid cycle is the final common metabolic pathway for the oxidation of foodstuffs-Justify. CO2
20. Explain the urea cycle and add a note on its metabolic disorders. CO3

\*\*\*\*\*

**DEPARTMENT OF ZOOLOGY**

<b>Course Code:</b> 33CT12	<b>Programme:</b> M.Sc.,	<b>CIA:</b> I Test
<b>Date:</b> 05.09.2019	<b>Major:</b> ZOOLOGY	<b>Semester:</b> I
<b>Time:</b> 2Hrs	<b>Year:</b> I	<b>Maximum:</b> 50 Marks
<b>Course Title:</b>	<b>CELL AND MOLECULAR BIOLOGY</b>	

**SECTION – A**

**ANSWER ALL QUESTIONS (Multiple choice questions):** **(5 X1= 5 Marks)**

1. In biological membranes, the side to side movement of phospholipids is known as (CO1)
  - a) Simple diffusion
  - b) Facilitated diffusion
  - c) Lateral diffusion
  - d) Transverse diffusion
2. Na<sup>+</sup> glucose transport is an example of (CO1)
  - a) Symport
  - b) Antiport
  - c) ATP driven active transport
  - d) Facilitated diffusion
3. How are materials transported between rough ER and smooth ER? (CO2)
  - a) By vesicles
  - b) Materials are transported freely between rough and smooth ER
  - c) By exocytosis
  - d) by endocytosis
4. Lysosomes have a hydrolytic enzyme associated with phagocytosis. Lysosomes are often found at (CO2)
  - a) Cell in the liver
  - b) Platelets
  - c) Erythrocyte
  - d) Leukocyte
5. \_\_\_\_\_ is a tumour arising from epithelial cells (CO3)
  - a) Osteoma
  - b) Lymphoma
  - c) Fibroma
  - d) Carcinoma

**SECTION – B**

**ANSWER ANY FIVE QUESTIONS (Very short answer):** **(5 X 2 =10 Marks)**

6. Interpretate the term molecular dynamics of the cell membrane. (CO1)
7. What are permeases? (CO1)
8. Discriminate symport from antiport. (CO1)
9. Comment on hydrolytic enzymes. (CO2)
10. Define endocytosis. (CO2)
11. Differentiate RER and SER. (CO2)
12. What are carcinogens? (CO3)

**SECTION – C**

**ANSWER ANY THREE QUESTIONS (Short answer):** **(3 X 5 = 15 Marks)**

13. Elucidate the molecular organization of cell membrane as basic bio membrane architecture with a neat diagram. (CO1)
14. Give an account on the function of chloride – bicarbonate exchanger with a diagrammatic representation. (CO1)
15. Give a brief account on the functions of lysosomes. (CO2)
16. Give an account of lysosome and their role in cell metabolism. (CO2)
17. List out the characteristic features of cancer cells. (CO3)

**SECTION – D**

**ANSWER ANY ONE QUESTIONS (Long Answer):** **(2 X10=20 Marks)**

18. Discuss cell recognition and inter cellular communication with labelled sketches. (CO1)
19. Describe the structure and functions of plasma membrane. (CO1)
20. Write an essay on biology of cancer. (CO3)



**VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST - 625234****DEPARTMENT OF ZOOLOGY**

<b>Course Code:</b> 31EP11	<b>Programme:</b> M.Sc.,	<b>CIA:</b> I Test
<b>Date:</b> 07.09.2019	<b>Major:</b> ZOOLOGY	<b>Semester:</b> I
<b>Time:</b> 2Hrs	<b>Year:</b> I	<b>Maximum:</b> 50 Marks
<b>Course Title:</b>	<b>BIOINFORMATICS</b>	

**SECTION – A Multiple choice questions****Answer All Questions:****5X1=5 Marks**

- RAM' stands for CO1
  - Random Access Memory
  - Read Access Memory
  - Read Arithmetic Memory
  - Random Arithmetic Memory
- Which key can be used to view Slide show? CO1
  - F5
  - F2
  - F7
  - F9
- Which one is the spreadsheet application that comes with MS Office software group? CO1
  - MS Word
  - MS Excel
  - MS PowerPoint
  - MS Access
- Getentry and GTOP are the database resources of CO3
  - NCBI
  - DDBJ
  - EMBL
  - Swiss-Prot
- The Swiss-Prot distinguishes itself from other protein sequence databases by CO3
  - Annotations
  - Minimal redundancy
  - Integration with other databases
  - all the above

**SECTION – B Very Short Answer****Answer any FIVE Questions:****5X2=10 Marks**

- List out the characters of computer CO1
- Write a note on title bar of MS Excel CO1
- Expand ENIAC and EDVAC CO1
- Write short account on SAKURA of DDBJ CO3
- Comment briefly on the ORF finder of NCBI CO3
- What is GTOP of DDBJ? CO3
- What are the features of protein family classification system? CO3

**SECTION – C Short Answer****Answer any THREE Questions:****3X5=15 Marks**

- Discuss the important components of a computer CO1
- Write an account on operating system CO1
- What are the advantages and disadvantages of MS Word? CO1
- Describe the home page of NCBI CO3
- Explain various types of databases with examples CO3

**SECTION – D Long Answer****Answer any TWO Questions:****2X10=20 Marks**

- Write a detailed account on the generation of computers CO1
- Write an essay on gene prediction technique and its difficulties CO3
- Compare the sequence submission methods of NCBI, EMBL and DDBJ CO3

\*\*\*\*\*

**VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST - 625234**

**DEPARTMENT OF ZOOLOGY**

<b>Course Code:</b> 31CT31	<b>Programme:</b> M.Sc.,	<b>CIA:</b> II Test
<b>Date:</b> 04.09.2019	<b>Major:</b> ZOOLOGY	<b>Semester:</b> III
<b>Time:</b> 2Hrs	<b>Year:</b> II	<b>Maximum:</b> 50 Marks
<b>Course Title:</b>	<b>GENETICS</b>	

**SECTION – A**

**ANSWER ALL QUESTIONS (Multiple choice questions):** **(5 X1= 5 Marks)**

1. The haploids are able to express both dominant and recessive characters due to (CO2)
  - a) Many alleles for each gene
  - b) The presence two alleles for each gene
  - c) Only one allele for each gene in an individual
  - d) only one allele in a gene
2. Transfer of DNA from one bacterium to the next occurs by (CO2)
  - a) Transformation
  - b) Conjugation
  - c) Transduction
  - d) All the above
3. The IS elements can be identified by the presence of \_\_\_\_\_ (CO2)
  - a. Antibiotic resistance gene
  - b. Endonuclease cleavage site
  - c. 50 bp inverted repeat
  - d. Integrase site
4. The enzyme that catalyzes the transposition of an IS element is called \_\_\_\_\_ (CO3)
  - a. Transposase
  - b. Integrase
  - c. Transcriptase
  - d. Polymerase
5. Addition or deletion of a nucleotide base pair involves (CO4)
  - a. point mutation
  - b. silent mutation
  - c. nonsense mutation
  - d. frame shift mutation

**SECTION – B**

**ANSWER ANY FIVE QUESTIONS (Very short answer):** **(5 X 2 =10 Marks)**

6. What are haploid organisms? CO2
7. Comment on genetic notation. CO2
8. Write a short note on restriction endonuclease. CO2
9. Give short note on DNA ligase. CO3
10. What are transposable elements? CO3
11. How does DNA ligase seal nick? CO3
12. Interpretate the term concatamer replication. CO3

**SECTION – C**

**ANSWER ANY THREE QUESTIONS (Short answer):** **(3 X 5 = 15 Marks)**

13. Describe in detail the role of enzymes in DNA replication. CO2
14. What are plasmids? Mention its types and functions. CO2
15. Write a brief account on gene locus. CO2
16. Give an account on enzymology of replication in prokaryotes. CO3
17. Define and enumerate the types of mutation. CO4

**SECTION – D**

**ANSWER ANY ONE QUESTIONS (Long Answer):** **(2 X10=20 Marks)**

18. Write a detailed account on the gene transfer mechanisms in bacteria with a neat diagram. CO2
19. Elaborate the mechanism of DNA replication in prokaryotes with a representative figure. CO3
20. Discuss various types of mechanisms of DNA repair. CO4

RRRRRRRR

**VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST - 625234**

**DEPARTMENT OF ZOOLOGY**

<b>Course Code:</b> 31CT32	<b>Programme:</b> M.SC.,	<b>CIA:</b> II Test
<b>Date:</b> 05.09.2019	<b>Major:</b> ZOOLOGY	<b>Semester:</b> III
<b>Time:</b> 2Hrs	<b>Year:</b> II	<b>Maximum:</b> 50 Marks
<b>Course Title:</b>	<b>PHYSIOLOGY</b>	

**SECTION – A Multiple choice questions**

**Answer All Questions:**

**5X1=5 Marks**

- The principal hormones regulating water and salt balance in vertebrates are (CO1)  
a) Prolactin                      b) Octapeptides                      c) Adrenocortical steroids                      d) All
- The molecular weight of luciferin is (CO2)  
a) 120,000                      b) 30,000                      c) 40,000                      d) 50,000
- The nerve cells are separated by a special connective tissue whose cells are called the (CO2)  
a) Axon                      b) Dendrites                      c) Synapse                      d) Neuroglia
- Which sets of ions are necessary in the chemical events for muscle contraction? (CO3)  
a) Na<sup>+</sup> and K<sup>+</sup>                      b) Ca<sup>+</sup> and Mg<sup>++</sup> ions                      c) Na<sup>+</sup> and Ca<sup>++</sup> ions                      d) Na<sup>+</sup> and Mg<sup>++</sup> ions
- The functional unit of contractile system in a striated muscle is (CO3)  
a) Myofibril                      b) Cross bridges                      c) Z band                      d) Sarcomere

**SECTION – B Very short answer**

**Answer any Five Questions:**

**5X2=10 Marks**

- What is EEG? (CO1)
- What do you mean by “respiratory water loss”? (CO1)
- What is meant by “metabolic water”? (CO1)
- List out the types of muscles. (CO3)
- State the theory of muscle contraction. (CO3)
- Expand and define ECG? (CO3)
- What is hematocrit? (CO3)

**SECTION – C Short answer**

**Answer any Three Questions**

**3X5=15 Marks**

- Describe the biochemistry of bioluminescence. (CO2)
- Explain the structure of photoreceptor. (CO2)
- Comment on visual cycle. (CO2)
- Explain the working mechanisms of Kymograph. (CO3)
- What are the physical and chemical changes that takes place during muscle contraction?(CO3)

**SECTION - D Long Answer**

**Answer any Two Questions:**

**2x10 = 20 marks**

- Explain in detail the ionic regulation in isosmotic media. (CO1)
- Write a detailed account on hormones and hydro mineral regulation in vertebrates. (CO2)
- Describe the structure and functions of muscle contraction in vertebrates. (CO3)

RRRRRRRR

**VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST - 625234****DEPARTMENT OF ZOOLOGY**

<b>Course Code:</b> 31CT33	<b>Programme:</b> M.SC.,	<b>CIA:</b> II Test
<b>Date:</b> 06.09.2019	<b>Major:</b> ZOOLOGY	<b>Semester:</b> III
<b>Time:</b> 2Hrs	<b>Year:</b> II	<b>Maximum:</b> 50 Marks
<b>Course Title:</b>	<b>PRINCIPLES OF BIOTECHNOLOGY</b>	

**SECTION – A****MULTIPLE CHOICE QUESTIONS****Answer All Questions:****5X1=5 Marks**

- The enzyme that are more active in alkaline pH, which removes 5' phosphate group from DNA, RNA, Protein and alkaloids is ---CO2
  - Polynucleotide kinase
  - DNA Ligase
  - Alkaline Phosphatase
  - Restriction endo and exo nucleases
- The type of plasmid mediate their own transfer between bacteria through conjugation specified by "tra" gene and "mob" region is ---CO3
  - Relaxed plasmid
  - stringent plasmid
  - Conjugative plasmid
  - Non- Conjugative plasmid
- In Colony hybridization after the nitrocellulose papers were removed from colony, it is baked at \_\_\_ temperature to fix cDNA properly ---CO5
  - 80°C
  - 90° C
  - 70° C
  - 67° C
- The chemical used to construct cDNA library are ---CO5
  - Oligo – dt
  - alkaline sucrose
  - d-NTP precursors
  - All the above
- The virus mediated gene transfer method using genetically modified bacteriophage is ---CO5
  - Transfection
  - Transformation
  - Transduction
  - Conjugation

**SECTION – B****VERY SHORT ANSWER****Answer any Five Questions:****5X2=10 Marks**

- Write a short note on DNA polymerase V ---CO2
- Mention the characteristics of T<sub>7</sub> ligases ---CO2
- Comment on Calf intestinal alkaline phosphate ---CO2
- How nomenclatures of restriction enzymes are derived? ---CO2
- What is genomic library? ---CO5
- Comment on microinjection method of gene transfer ---CO5
- What is clone? ---CO5

**SECTION – C****SHORT ANSWER****Answer any Three Questions****3X5=15 Marks**

- What is Klenow polymerase- I? What its functions? ---CO2
- Give an account on *E.coli* and thermo stable DNA ligase. ---CO2
- Discuss briefly the methods of gene transfer. ---CO5
- Give a brief account on synthesis of cDNA from mRNA. ---CO5
- Write a note on gene cloning strategies. ---CO5

**SECTION - D****LONG ANSWER****Answer any Two Questions:****2x10=20 Marks**

- Write an assay on mechanism and process of DNA ligation. ---CO2
- Give a detailed account on DNA polymerase I, II, and III. ---CO2
- Write a detailed account on screening of DNA hybridization and colony hybridization ---CO5

RRRRRRRR

**VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST - 625234**

**DEPARTMENT OF ZOOLOGY**

<b>Course Code:</b> 31NE31	<b>Programme:</b> M.Sc., / M.COM	<b>CIA:</b> II Test
<b>Date:</b> 07.09.2019	<b>Major:</b> CHEMISTRY / M.COM	<b>Semester:</b> III
<b>Time:</b> 2Hrs	<b>Year:</b> II	<b>Maximum:</b> 50 Marks
<b>Course Title:</b>	<b>ECONOMIC ZOOLOGY</b>	

**SECTION – A Multiple choice questions**

**Answer All Questions: 5X1=5 Marks**

1. Induced breeding is effective in which of them? CO4
  - a. Pisciculture
  - b. Sericulture
  - c. Apiculture
  - d. Lac culture
2. The scientific name of molly is CO4
  - a. *C. auratus*
  - b. *B. splendens*
  - c. *Poecilia*
  - d. *Colisa*
3. Who is the father of Apiculture? CO2
  - a. Lanstroth
  - b. Quinby
  - c. Johann Dzierzon
  - d. Miller
4. Honey bees are included in the phylum CO2
  - a. Mollusca
  - b. Annelida
  - c. Echinodermata
  - d. Arthropoda
5. *Apis mellifera* is commonly known as CO2
  - a. Indian bee
  - b. European bee
  - c. Little bee
  - d. Rock bee

**SECTION – B Very Short Answer**

**Answer any FIVE Questions: 5X2=10 Marks**

6. List out the any four characters of molly CO4
7. Write scope of sericulture CO3
8. What is sericulture? CO3
9. Define the term apiary CO2
10. Mention the functions of worker bee CO2
11. Comment on wax moth CO2
12. Write the functions of the drone bee CO2

**SECTION – C Short Answer**

**Answer any THREE Questions: 3X5=15 Marks**

13. Describe the important features of gold fish CO4
14. Write an account on setting an aquarium CO4
15. Describe the scope of bee keeping CO2
16. Analyse the uses of bee venom CO2
17. Elucidate the economic importance of bee wax CO2

**SECTION – C Long Answer**

**Answer any TWO Questions: 2X10=20 Marks**

18. Write a detailed account on water quality management CO4
19. Discuss the nutritive and medicinal value of honey CO2
20. Explain the structure of Newton's bee hive and comment on its advantages CO2

BBBBBBB