



VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST - 625234
DEPARTMENT OF ZOOLOGY

Course Code:	31CT11	Programme:	M.Sc	CIA:	I
Date:	06.10.2021	Major:	Zoology	Semester:	I
Duration:	2 Hours	Year:	I	Max.Marks:	50
Course Title:	BIOCHEMISTRY				

SECTION – A (Remembering)

Answer **ALL** the Questions:

(5 X 1 = 5 Marks)

- 1 True among the following regarding competitive inhibitors is CO1
a) V_{max} decreases b) Apparent K_m decreases by a factor $a V_{max} [S]$
c) Michaelis–Menten equation becomes $V_0 = \frac{aK_m + [S]}{d}$ d) It is an irreversible reaction
- 2 Name the carbohydrate formed by α (1→4) linkage of glucose. CO1
a) Starch b) Lactose c) Glycogen d) Trehalose
- 3 During conversion of one pyruvic acid molecules into one molecule of acetyl- Co A, how many molecules of CO_2 are produced? CO2
a. Four b. Three c. Two d. One
- 4 GPT Catalyses the transfer of NH_2 from glutamate to pyruvate, resulting in the formation of CO3
a. α - Ketoglutarate b. Alanine c. Serine d. Both a and b
- 5 Oxidative deamination of glutamic acid is catalysed by CO3
a. Glutamate dehydrogenase b. Oxidase c. Glutamate Oxalo acetate d. Ligases

SECTION – B (Understanding)

Answer any **FIVE** Questions:

(5 X 2 = 10 Marks)

- 6 Differentiate aldoses and ketoses. Give illustrations. CO1
- 7 Define hormones. CO1
- 8 Comment on glycogenolysis CO2
- 9 What is glycogenesis? CO2
- 10 What is transamination? CO3
- 11 Comment on transdeamination CO3
- 12 Give a brief note on deamination CO3

SECTION – C (Applying)

Answer any **THREE** Questions:

(3 X 5= 15 Marks)

- 13 Highlight the enzyme kinetics. CO1
- 14 Draw a flow diagram showing the reactions of glycolysis CO2
- 15 Write short notes on Cori cycle CO2
- 16 Discuss the metabolisms of aspartate family of amino acids CO3
- 17 Explain the pyruvate family of amino acids CO3

SECTION – D (Analyzing)

Answer any **TWO** Question:

(2X 10= 20 Marks)

- 18 Classify and write a detailed account on polysaccharides. CO1
- 19 Justify that citric acid cycle is the final common metabolic pathway for the oxidation of foodstuffs CO2
- 20 Write a detailed account on Urea cycle CO3





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Course Code:	31CT12	Programme:	M.Sc	CIA:	I
Date:	07.10.2021	Major:	Zoology	Semester:	I
Duration:	2 Hours	Year:	I	Max.Marks:	50
Course Title:	CELL AND MOLECULAR BIOLOGY				

SECTION – A (Remembering)

Answer **ALL** the Questions: (5 X 1 = 5 Marks)

- 1 During cell division chromosome attaches with spindle. CO2
a. Kinetochore b. Centromere c. Contrirole d. Secondary constriction
- 2 The formation of RNA complementary to a DNA strand is called. CO2
a. Transcription b. Translation c. Processing d. Gene Amplification
- 3 Protein synthesis occurs inside the _____. CO2
a. Nucleus b. Cytoplasm c. Nucleolus d. Ribosomes
- 4 Na⁺ glucose transport is an example of CO1
a) Symport b) Antiport c) ATP driven active transport d) Facilitated diffusion
- 5 The total yield of ATP in Krebs cycle of eukaryotic cell is CO1
a) 35 b) 40 c)30 d)32

SECTION – B (Understating)

Answer any **FIVE** Questions: (5 X 2 = 10 Marks)

- 6 How are the phospholipid layers held together? CO1
- 7 Define oxidative phosphorylation. CO1
- 8 How are the phospholipid layers held together? CO1
- 9 What are the main functions of endoplasmic reticulum? CO2
- 10 Comment on hydrolytic enzymes. CO2
- 11 What are the lysosomal enzymes? CO2
- 12 Give a short note about endocytosis. CO2

SECTION – C (Applying)

Answer any **THREE** Questions: (3 X 5= 15 Marks)

- 13 Enumerate the enzymes functioning in the mitochondria. CO1
- 14 Narrate the architecture of plasma membrane with reference to fluid – mosaic model with a labelled sketch. CO1
- 15 Describe in brief the molecular arrangements of DNA. CO2
- 16 List out the lysosomal enzymes? Mention its functions. CO2
- 17 Explain about the role of enzymes in DNA replication. CO2

SECTION – D (Analyzing)

Answer any **TWO** Question: (2X 10= 20 Marks)

- 18 Exemplify various mechanisms of transport across the biological membranes. CO1
- 19 Write an account on the structure and functions of endoplasmic reticulum. CO2
- 20 Write about the molecular mechanism of Gogi complex. CO2





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Course Code:	31CT13	Programme:	M.Sc	CIA:	I
Date:	08.10.2021	Course:	Zoology	Semester:	I
Duration:	2 Hours	Year:	I	Maximum:	50
Course Title:	MICROBIOLOGY				

SECTION – A (Remembering)

Answer **ALL** the Questions: **(5 X 1 = 5 Marks)**

- 1 The study of protozoa is called _____. **CO1**
a. Parasitology b. Protozoology c. Pomology d. Bio-zoology
- 2 Who proposed a five kingdom concept? **CO1**
a. Stutchbury b. Daly c. Whittaker d. Darwin
- 3 Polio can be eradicated by which of the following? **CO3**
a) Attention to sewage control and hygiene b) Killed polio vaccine c) Live polio vaccine
d) Combination of the killed and live vaccines
- 4 Bacteria is a group of microorganisms are responsible for **CO4**
a. Nitrogen oxidation b. Sulfur oxidation c. Nitrogen fixation d. All of these
- 5 Nitrogen fixation refers to the direct conversion of atmospheric nitrogen gas into **CO4**
a. Ammonia b. Glucose c. ATP d. Nitrate

SECTION – B (Understanding)

Answer any **FIVE** Questions: **(5 X 2 = 10 Marks)**

- 6 List out the characteristic features of Virus. **CO1**
- 7 What is monera? **CO1**
- 8 Comment on Mesosomes. **CO1**
- 9 Write any two salient features of algae. **CO1**
- 10 What you mean by normal flora? **CO3**
- 11 Define the term epidemiology. **CO3**
- 12 Define the term nitrification? **CO4**

SECTION – C (Applying)

Answer any **THREE** Questions: **(3 X 5= 15 Marks)**

- 13 Describe the ultra structure of bacterial cell. **CO1**
- 14 Briefly explain the Koch's postulates. **CO1**
- 15 Give a detailed account on *Mycobacterium tuberculosis* and discuss its mode of transmission to human and treatment. **CO3**
- 16 Write a short note on *Candida albicans* and its causes. **CO3**
- 17 Enumerate the general principles of epidemiology. **CO3**

SECTION – D (Analyzing)

Answer any **TWO** Question: **(2X 10= 20 Marks)**

- 18 Differentiate between Prokaryotic and Eukaryotic microorganisms. **CO1**
- 19 Give a detailed account on the biology of Polio virus and discuss its transmission and control measures. **CO3**
- 20 Write an essay on sewage treatment and mention its significance **CO4**





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DEPARTMENT OF ZOOLOGY

Course Code:	31EP11	Programme:	M.Sc	CIA:	I
Date:	09.10.2021	Major:	Zoology	Semester:	I
Duration:	2 Hours	Year:	I	Max.Marks:	50
Course Title:	BIOINFORMATICS				

SECTION – A (Remembering)

Answer **ALL** the Questions: **(5 X 1 = 5 Marks)**

- 1 Computers that are portable and convenient for users who travel are known as **CO1**
a. Super computers b. Laptops c. Mini computers d. File server
- 2 Which key can be used to view Slide show? **CO1**
a. F5 b. F2 c. F7 d. F9
- 3 Which one is the spreadsheet application that comes with MS Office software group? **CO1**
a. MS Word b. MS Excel c. MS PowerPoint d. MS Access
- 4 The matching of pairwise sequences in their entirety is **CO3**
a. Local b. Global c. Mutual d. Opposite
- 5 The phylogenetic tree showing the relative recentness of common ancestry is **CO3**
a. Cladogram b. Phylogram c. Dendrogram d. Phyloticgram

SECTION – B (Understating)

Answer any **FIVE** Questions: **(5 X 2 = 10 Marks)**

- 6 Mention the characters of computer **CO1**
- 7 Write a note on title bar of MS Excel **CO1**
- 8 Expand ENIAC and EDVAC **CO1**
- 9 Mention the different types of major databases present in NCBI **CO3**
- 10 Write a short comment on SAKURA submission tool in DNA Databank of Japan **CO3**
- 11 What are the components of GEO data depository of NCBI? Comment on them **CO3**
- 12 Comment shortly on the importance of ORF Finder analysis tool of NCBI **CO3**

SECTION – C (Applying)

Answer any **THREE** Questions: **(3 X 5= 15 Marks)**

- 13 Discuss the important components of a computer **CO1**
- 14 Write an account on operating system **CO1**
- 15 What are the advantages and disadvantages of MS Word? **CO1**
- 16 Describe the home page and sequence retrieval methods in NCBI **CO3**
- 17 Enumerate the concepts of Gap in Alignment and Gap penalty types **CO4**

SECTION – D (Analyzing)

Answer any **TWO** Question: **(2X 10= 20 Marks)**

- 18 Describe generation and classification of computers **CO1**
- 19 Explain the differences of sequence submission tools in NCBI and EMBL composite databanks **CO3**
- 20 Give an account on various types of BLAST technique in sequence alignment and procedures adopted in Nucleotide BLAST (BLASTn) **CO4**





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Course Code:	31CT31	Programme:	M.Sc	CIA:	I
Date:	15.09.2021	Major:	Zoology	Semester:	III
Duration:	2 Hours	Year:	II	Max.Marks:	50
Course Title:	GENETICS				

SECTION – A (Remembering)

Answer **ALL** the Questions: (5 X 1 = 5 Marks)

- 1 Which of the following is the name of the human genetic disorder resulting from defects in nucleotide excision repair? CO4
 - a. Hereditary nonpolyposis colorectal cancer (HNPCC)
 - b. Xeroderma pigmentosum (XP)
 - c. Lynch syndrome
 - d. Diabetes
- 2 Which of the following malformation in a newborn is specific for maternal insulin dependent diabetes mellitus? CO4
 - a. Transposition of great arteries
 - b. Caudal regression
 - c. Holoprosencephaly
 - d. Meningocele
- 3 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
- 4 Chimeric DNA can be detected by CO2
 - a) Marker genes
 - b) promoter
 - c) Restriction sites
 - d) Ori C
- 5 Genetic transfer from one bacterium to another mediated by virus is called CO2
 - a) Recombination
 - b) Conjugation
 - c) Transformation
 - d) Transduction

SECTION – B (Understating)

Answer any **FIVE** Questions: (5 X 2 = 10 Marks)

- 6 What is photoreactivation? CO4
- 7 Interpretate the term frameshift mutation. CO4
- 8 Mention genetic importance of DNA methylation CO4
- 9 What are Hfr strains? CO2
- 10 Define plasmids. CO2
- 11 Interpretate the term competence in concern with bacterial transformation. CO2
- 12 What is insertional inactivation? CO2

SECTION – C (Applying)

Answer any **THREE** Questions: (3 X 5= 15 Marks)

- 13 Give an account on different kinds of genetic recombination. CO4
- 14 Describe various types of mutation giving pictorial representation. CO4
- 15 Describe SOS response repair. CO4
- 16 Describe the genetics of haploid organisms with suitable illustrations. CO2
- 17 Describe Griffith's effect. CO2

SECTION – D (Analyzing)

Answer any **TWO** Question: (2X 10= 20 Marks)

- 18 Elaborate the DNA repairing mechanisms with the explanatory figures. CO4
- 19 Explain the types and detection of plasmids. CO2
- 20 Give an account on mechanism of bacterial conjugation with reference to Hfr strains. CO2





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Course Code:	31CT32	Programme:	M.Sc	CIA:	I
Date:	16.09.2021	Major:	Zoology	Semester:	III
Duration:	2 Hours	Year:	II	Max.Marks:	50
Course Title:	PHYSIOLOGY				

SECTION – A (Remembering)

Answer **ALL** the Questions: **(5 X 1 = 5 Marks)**

- 1 Sea water has a specific gravity of about **C01**
a. 1.022 b. 1.023 c. 1.024 d. 1.026
- 2 The function of swim bladder is **C01**
a. Gas exchange b. Hearing c. Sound production d. All
- 3 The light producing marine species are found in **C02**
a. Abyssal region b. Littoral region c. Plankton region d. All
- 4 Normal adult resting heart beats **C03**
a. 17 bpm b. 42 bpm c. 72 bpm d. 120 bpm
- 5 The percentage of formed elements in the blood is **C05**
a. 45 b. 55 c. 50 d. 65

SECTION – B (Understating)

Answer any **FIVE** Questions: **(5 X 2 = 10 Marks)**

- 6 Enlist the respiratory organs of vertebrates and invertebrates. **C01**
- 7 Mention the respiratory pigments. **C01**
- 8 What is Buoyancy? **C01**
- 9 Define the term acclimation. **C02**
- 10 What is systole and diastole? **C05**
- 11 Define body fluids. **C05**
- 12 List out the types of circulation in man. **C05**

SECTION – C (Applying)

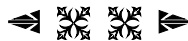
Answer any **THREE** Questions: **(3 X 5 = 15 Marks)**

- 13 Explain the mechanism of transport of gases. **C01**
- 14 "O₂ as a limiting factor in the environment" – Discuss. **C01**
- 15 What is bioluminescence? Explain its mechanism and significances. **C02**
- 16 Describe the counter current mechanism. **C03**
- 17 Give an account on cardiac rhythms. **C05**

SECTION – D (Analyzing)

Answer any **TWO** Question: **(2X 10 = 20 Marks)**

- 18 Describe the physiology of magnetotherapy and megavoltage therapy. **C01**
- 19 Give a details account on pulmonary ventilation. **C03**
- 20 Write an essay on blood and its formed elements. **C05**



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

Course Code:	31CT33	Programme:	M.Sc	CIA:	I
Date:	17.09.2021	Major:	Zoology	Semester:	III
Duration:	2 Hours	Year:	II	Max.Marks:	50
Course Title:	PRINCIPLES OF BIOTECHNOLOGY				

SECTION – A (Remembering)Answer **ALL** the Questions:**(5 X 1 = 5 Marks)**

- 1 PPE is: CO1
a) Personal protective equipment b) Public protective equipment c) Possible protective equipment d) All of the above
- 2 The Indian Patents & Design Act enacted in CO1
a) 1910 b) 1911 c) 2002 d) 2005
- 3 The method of separation of DNA on the basis of its size to transfer the DNA in a filter membrane for probe hybridisation is CO4
a) Southern blotting b) Northern blotting c) Western blotting d) Eastern blotting
- 4 Which of the following is a chemical nucleotide sequencing method CO4
a) Sanger method b) Maxam – Gilbert method c) Edmans method d) Automated sequencing method
- 5 The purpose of restriction modification methylation is mainly to facilitate CO2
a) entry of plasmid b) Restrict entry of plasmid c) the attachment of plasmid d) To kill the plasmid

SECTION – B (Understating)Answer any **FIVE** Questions:**(5 X 2 = 10 Marks)**

- 6 What is intellectual property? CO1
- 7 Define the term bioethics. CO1
- 8 What is geographical indication of food. CO1
- 9 Comment on trade secrets. CO1
- 10 Write a short comment on Taq polymerase. CO4
- 11 Classify The Cloning vectors based on their DNA carrying capacity CO2
- 12 Comment on *VIR – gene* CO2

SECTION – C (Applying)Answer any **THREE** Questions:**(3 X 5= 15 Marks)**

- 13 Write an account on biosafety and its significance in DNA research. CO1
- 14 Explain briefly present status, scope of biotechnology in India. CO1
- 15 Describe the features and characteristics of plasmid vectors CO2
- 16 Discuss on Restriction Modification systems CO2
- 17 What are exonucleases? Describe any three exonucleases. CO2

SECTION – D (Analyzing)Answer any **TWO** Question:**(2X 10= 20 Marks)**

- 18 Write a detailed account on IPR and discuss its importance. CO1
- 19 Discuss in detail principle and applications of polymerase chain reaction. CO4
- 20 Give a detailed account on types and mechanism of action of DNA ligases. CO2





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Course Code:	31NE31	Major:	Non-Major	CIA:	I
Date:	18.09.2021			Semester:	III
Duration:	2 Hours	Year:	II	Max.Marks:	50
Course Title:	ECONOMIC ZOOLOGY				

SECTION – A (Remembering)

Answer **ALL** the Questions: **(5 X 1 = 5 Marks)**

- 1 Earthworm belongs to the class **CO1**
a. archiooligochaeta b. neooligochaeta c. acanthobdellida d. rhynchobdellida
- 2 The temperature required for making good quality casting is **CO1**
a. 15-20°C b. 25-30°C c. 5-10°C d. 0-5°C
- 3 Pisciculture' is culture of **CO4**
a. earth worm b. Prawns c. Fishes d. silkworm
- 4 Gill rot disease is caused by **CO4**
a. Protozoa b. bacteria c. fungi d. Helminthes
- 5 The important food fish is **CO4**
a. Rohu b. Catla c. Wallago d. Clarius

SECTION – B (Understating)

Answer any **FIVE** Questions: **(5 X 2 = 10 Marks)**

- 6 Write the scope of vermitechnology **CO1**
- 7 What is hermaphrodite? **CO1**
- 8 Mention the characteristics of vermicasts **CO1**
- 9 Write the uses of bee venom **CO2**
- 10 List out the scope of fish culture **CO4**
- 11 What is monoculture? **CO4**
- 12 What are the types Integrated fish farming? **CO4**

SECTION – C (Applying)

Answer any **THREE** Questions: **(3 X 5= 15 Marks)**

- 13 Write the biology of *Eisenia fetida* **CO1**
- 14 Describe the Windrow method of vermitechnology **CO1**
- 15 Explain Newton's bee hive **CO2**
- 16 Enumerate the characteristics of culturable species **CO4**
- 17 Discuss the salient features of *Catla* **CO4**

SECTION – D (Analyzing)

Answer any **TWO** Question: **(2X 10= 20 Marks)**

- 18 Define Vermiwash. Discuss the method of preparation, composition and applications of vermiwash **CO1**
- 19 Summarize the nutritional and medicinal value of honey **CO2**
- 20 Describe induced spawning technique in Indian Major Carps **CO4**

