

BIOCHEMISTRY- 31CT11

SECTION – A

ANSWER ALL QUESTIONS

5X1=5 Marks

Multiple choice questions:

- | | | | | |
|--|--------------------------|---------------------|----------------------|-----|
| 1. Cholesterol is the precursor of all steroid hormones in the | | | | CO4 |
| a. Body | b. Bile acids | c. Vitamin D | d. All | |
| 2. Transamination is catalysed by | | | | CO3 |
| a. Transaminases | b. Ligases | c. Isomerases | d. Lyases | |
| 3. Hypouricemia is due to the deficiency of the enzyme | | | | CO5 |
| a. Glucose- 6- phosphate | b. PRPP synthetase | c. Xanthine oxidase | d. Transferases | |
| 4. The biosynthesis of prostaglandins occurs in | | | | CO1 |
| a. Nucleus | b. Endoplasmic reticulum | c. Lysosomes | d. Ribosomes | |
| 5. The tissue with abundant fats is | | | | CO1 |
| a) Reproductive | b) Vegetative tissue | c) Both a and b | d) None of the above | |

SECTION – B

ANSWER ANY FIVE QUESTIONS

5X2=10 Marks

Very short answer:

- | | |
|--|-----|
| 6. What is transamination? | CO3 |
| 7. What is Citrullinemia? | CO3 |
| 8. State the functions of PG. | CO4 |
| 9. Comment on Gout disease. | CO5 |
| 10. Comment on Orotic aciduria. | CO5 |
| 11. What are derived lipids? Cite examples | CO1 |
| 12. Why are men affected with heart disease than women in relation with cholesterol? | CO1 |

SECTION – C

ANSWER ANY THREE QUESTIONS

3X5=15 Marks

Short answer:

- | | |
|--|-----|
| 13. Explain the metabolism of glutamate family of amino acids. | CO3 |
| 14. Describe the ornithine cycle. | CO3 |
| 15. Explain the synthesis and degradation of prostaglandins. | CO4 |
| 16. Briefly describe the biosynthesis of pyrimidine ribonucleotides. | CO5 |
| 17. Enumerate the biological roles of lipids. | CO1 |

SECTION – D

ANSWER ANY ONE QUESTIONS

2x10=20 Marks

Long Answer:

- | | |
|--|-----|
| 18. Elucidate the metabolisms of Cholesterol. | CO4 |
| 19. Narrate the biosynthesis of purine ribonucleotides. | CO5 |
| 20. Analyze the biochemical reactions involved by COOH group and double bonds of lipids. | CO1 |

CELL AND MOLECULAR BIOLOGY- 31CT12

ANSWER ALL QUESTIONS SECTION – A 5X1=5 Marks

Multiple choice questions:

1. Study of ageing is called as CO3
a. Oncology b. Ageology c. Gerontology d. Teratology
2. The type of cell division occurs in somatic cells is CO3
a. Amitosis b. Mitosis c. Meiosis d. Cryptomitosis
3. In DNA double helix the two strands are interlinked by ----- bond. CO4
a) ionic b) covalent bond c) hydrogen d) phosphodiester
4. The basic repeating units of nucleic acids is CO4
a) nucleoside b) nucleotide c) amino acid d) protein
5. The formulation of the structure of DNA by CO4
a) Alma Howard b) StephenPelc c) Watson and Crick d). Meselson and Stahl

ANSWER ANY FIVE QUESTIONS SECTION – B 5X2=10 Marks

Very short answer:

6. Define Apoptosis. CO3
7. Comment on Aminoacyl t-RNA. CO5
8. Discriminate nucleoside and nucleotide. CO4
9. State Chargaff's rule. CO4
10. Which determines the 3' and 5' ends of nucleic acids? CO4
11. Comment on genetic code? CO4
12. What is Lac operon? Discuss its significance. CO4

ANSWER ANY THREE QUESTIONS SECTION – C 3X5=15 Marks

Short answer:

13. Elaborate the mechanism of translation indicating the role played by ribosome and tRNA in Eukaryotes. CO5
14. Explain the major events in prophase I of meiosis. CO3
15. What is transformation? Exemplify it with Griffith's experiments. CO4
16. Give an account on the experimental support to prove RNA as genetic material. CO4
17. Explain the role of enzymes in DNA replication. CO4

ANSWER ANY ONE QUESTIONS SECTION – D 2x10=20 Marks

Long Answer:

18. Narrate the types of cancers cells, their characters, diagnosis and treatment of Cancer. CO3
19. Discuss the molecular organization of DNA with reference to Watson and Crick model with a detailed molecular structure. CO4
20. Explain the molecular mechanism of sorting and distribution of protein. CO4

BIOINFORMATICS – 31EP11

SECTION – A

Answer All Questions:

5X1=5 Marks

1. HTML is what type of language? CO2
 - a. Scripting Language
 - b. Markup Language
 - c. Programming Language
 - d. Network Protocol
2. Which of the following is a correct format of Email address? CO2
 - a. name@website@info
 - b. name@website.info
 - c. www.nameofebsite.com
 - d. name.website.com
3. What is the name of first computer virus? CO2
 - a. The Famous
 - b. HARLIE
 - c. PARAM
 - d. Creeper
4. In gene finding the method rely on statistical information derived from known sequences to predict is CO4
 - a. Pattern based
 - b. content based
 - c. computational based
 - d. comparative based
5. In the structural proteomics, the secondary structures of protein that are widely seen is CO5
 - a. α - helix
 - b. β -sheets
 - c. loops
 - d. Ribbons

SECTION – B Very Short Answer

Answer any FIVE Questions:

5X2=10 Marks

6. What is a computer virus? CO2
7. Comment on database CO3
8. State the uses of email CO2
9. Distinguish Cladistic and Phenetic methods of Phylogenetic relations CO4
10. Write down the secondary structures of protein CO5
11. What is content based gene prediction? CO5
12. Differentiate Cladogram, Dendrogram and Phylogram CO4

SECTION – C Short Answer

Answer any THREE Questions:

3X5=15 Marks

13. Discuss the steps involved in creation of email CO2
14. Write an account on creation of webpage CO2
15. Summarize the features of biological databases CO3
16. Describe the intricacies of Ramachandran plot. Explain the same CO4
17. Comment in detail the methods of gene prediction (OR) CO5
Differentiate Abinitio and threading models of protein modelling CO5

SECTION – C Long Answer

Answer any TWO Questions:

2X10=20 Marks

18. Describe the classification of biological databases CO3
19. Describe the methodology used in homology modelling of protein from nucleotide sequences CO5
20.
 - a. Explain the identification methods of virus CO2
 - b. Explain multiple sequence alignment and construction of an unrooted Phylogenetic tree CO4

GENETICS (31CT31)

ANSWER ALL QUESTIONS

SECTION – A

5X1=5 Marks

Multiple choice questions:

1. Which of the following is an example of site-specific recombination?
 - a. Conjugation in bacteria
 - b. Lysogeny in lamda phage
 - c. Transformation in bacteria
 - d. Lytic cycle in phage
2. The site specific reaction between tow circular plasmids could result in _____
 - a. Single circular chromosome
 - b. Two recombinant circular chromosomes
 - c. One recombinant linear chromosome and other circular
 - d. Two recombinant linear chromosomes.
3. Which of the following types of protein could be coded by tumour-suppressor gene?
 - a. Protein that forms part of a growth factor signalling pathway.
 - b. A protein that codes for a DNA repair enzyme.
 - c. A protein that helps prevents apoptosis.
 - d. A protein that controls progression through the cells cycle.
4. The ability of a bacterial cell to take up DNA from the surroundings is called
 - a) Hfr
 - b) fitness
 - c) Competence
 - d) Fecundity
5. The bacterial cell with F factor integrated with genomic DNA is called
 - a) Hfr cell
 - b) F⁺ cell
 - c) F⁺ super strain
 - d) F⁻ cell

ANSWER ANY FIVE QUESTIONS

SECTION – B

5X2=10 Marks

Very short answer:

6. Mention the properties of oncogenes.
7. Define oncoproteins.
8. Comment on congenital malformation.
9. What is genetic counselling?
10. What is Griffith effect?
11. Define DNA annotation.
12. Expand and define SD.

ANSWER ANY THREE QUESTIONS

SECTION – C

3X5=15 Marks

Short answer:

13. Describe the molecular mechanism of DNA double-strand breaks.
14. Write a short note on site-specific recombination.
15. Give a short note on pedigree analysis.
16. Describe the experiments of Griffith to prove transformation.
17. What are Hfr cells? Trace the gene transfer by them.

ANSWER ANY ONE QUESTIONS

SECTION – D

2x10=20 Marks

Long Answer:

18. Explain the following terms:
(i) Eugenics (ii) Euthenics (iii) Euphenics (iv) Genetic recombination
19. Write a short note on the mechanism of simple conjugation to transfer genes between bacterial strains with labelled sketches.
20. Write an essay on the human genome project.

MICROBIOLOGY - 31CT32

SECTION – A

ANSWER ALL QUESTIONS

(5X1=5 Marks)

Multiple choice questions:

1. Bacterial cell can be accurately counted by _____ counting chamber CO2
a. Petroft- Hausser b. Costerton- Simon c. Doestsch- Sioblad d. Ferris- Beveridge
2. The optimum growth temperature of mesophilic bacteria is _____ CO2
a. 40°C-80°C b. 50°C -100°C c. 10°C -20°C d. 25°C -40°C.
3. _____ used the first large scale fermentor for the production of yeast. CO5
a. De Becze&Liebmann b. Sanger & Ogawa c. Sanger &Shermau d. Koltin& King
4. Nitrogen fixation refers to the direct conversion of atmospheric nitrogen gas into CO₄
a. Ammonia b. Glucose c. ATP d. Nitrate
5. Major faecal contaminant in potable water is CO4
a. *Escherichia coli* b. *Streptococcus faecalis* c. Both a and b d. *Escherichia coli* only

SECTION – B

ANSWER ANY FIVE QUESTIONS

(5X2=10 Marks)

Very short answer:

6. Define fermentation. CO5
7. Write any two antibiotics. CO5
8. What is exponential phase? CO2
9. How do you quantify the microorganisms? CO2
10. What is eutrophication? CO4
11. Define Nitrification. CO4
12. List out the sources of water. CO4

SECTION – C

ANSWER ANY THREE QUESTIONS

(3X5=15 Marks)

Short answer:

13. Explain the downstream processes in the field of fermentation technology. CO5
14. Write any three bacterial and fungal enzymes. CO5
15. Explain the types of fermentor. CO5
16. Why the study of aquatic microorganism is great significance? Discuss. CO4
17. Differentiate symbiotic and non-symbiotic nitrogen fixation. Explain with suitable examples. CO4

SECTION – D

ANSWER ANY ONE QUESTIONS

(2x10=20 Marks)

Long Answer:

18. Explain the growth of bacteria in batch, synchronous and continuous culture. CO2
19. Discuss in detail the various sources of contamination of water. How you will examine with microbial techniques? CO4
20. Write a detail account on the role of microorganisms in regulation of mitogen and carbon. CO4

Principles of Biotechnology – 31CT33

SECTION – A Multiple choice questions

Answer All Questions:

5X1=5 Marks

1. When DNA is cut with restriction enzymes which were then probed with Radioactive gene which is then transferred in to nitrocellulose paper for hybridisation this is followed in
 - a) Eastern Blotting
 - b) Western Blotting
 - c) Southern Blotting
 - d) Northern Blotting
2. One of the approach for labelling nucleic acid to be used as DNA probe in Radioactive labelling is
 - a) Nick translation
 - b) Biotin
 - c) Digoxigenin
 - d) expression vectors
3. Shooting of foreign DNA in plant cell or tissue at a high speed is through the technique
 - a) Electroporation
 - b) Ultra-sonication
 - c) Liposome transfer
 - d) Particle bombardment gun
4. PCR is a technique of
 - a) Gene amplification
 - b) Gene manipulation
 - c) Recombination
 - d) RNA Synthesis
5. Automatic DNA sequencing method was proposed by
 - a) Scharf
 - b) Sanger
 - c) Maxam
 - d) Gilbert

SECTION – B Very short answer

Answer any Five Questions:

5X2=10 Marks

6. Comment on random primed radio-labelling of probes
7. Define Shine Dalgarno sequences
8. What is reverse Northern Blot?
9. Mention the uses of Western blotting.
10. Specify the applications of Microarray.
11. Mention events of PCR.
12. Enlist the advantages of automatic DNA sequencing.

SECTION – C Short answer

Answer any Three Questions

3X5=15 Marks

13. Explain the process of Dot blot technique
14. Describe the process of Restriction Mapping
15. Give an account on advantage, disadvantage and applications of Northern blotting
16. Enumerate exclusive process of Southern blotting
17. Elaborate the PCR technique.

SECTION - D Long Answer

Answer any Two Questions:

2x10 = 20 marks

18. Write an essay on various techniques of Gene transfer.
19. Describe various methods used mainly for selection and screening of recombinants.
20. Discuss elaborately the Sanger, Maxam and Gilbert techniques for DNA sequencing.

Vivekananda College- Tiruvedakam West

III-Internal Test

DATE: 17.10.2018

Max.Marks: 50

Time: 2 Hours

Applied Biology- 31NE31

ANSWER ALL QUESTIONS

SECTION – A

(5X1=5 Marks)

Multiple choice questions:

- The main aim of dairy farming is to create
 - White revolution
 - Blue revolution
 - Green revolution
 - All the above
- Foot and mouth disease is caused by
 - Fungi
 - Protozoa
 - Virus
 - Bacteria
- Human growth hormone is secreted by
 - Pituitary gland
 - Adrenal gland
 - Thyroid gland
 - Pancreas
- The determination of the order of various genes along the length of a chromosome is called
 - Gene mapping
 - Gene sequencing
 - Gene Library
 - Gene prediction
- The Scientific technique used to detect the possible risks of GEO's is called
 - Risk modelling
 - Risk Evaluation
 - Containments
 - Bio-weapons

ANSWER ANY FIVE QUESTIONS

SECTION – B

(5X2=10 Marks)

Very short answer:

- Comment on Pest
- What is Paedogenesis?
- What is Callus?
- Comment on Invitro fertilization.
- Define Plasmid.
- Define Karyotype
- What are adjuvants?

ANSWER ANY THREE QUESTIONS

SECTION – C

(3X5=15 Marks)

Short answer:

- Describe the various methods of water conservation
- Describe the fermener tank with a diagram
- Elucidate the structure of Human growth hormones
- What are vaccines ? Write a brief note on Immunization Schedule for children.
- Discuss the biohazards of rDNA technology.

ANSWER ANY TWO QUESTIONS

SECTION – D

(2x10=20 Marks)

Long Answer:

- Elaborate the Renewable and non-renewable energy resources.
- Elucidate the method of embryo transfer technique with neat diagram.
- How do genetically modified organisms employed in the management of environmental wastes.
