

Immunology – 31CT21

SECTION – A Multiple choice questions

- Answer All Questions: **5X1=5 Marks**
1. Antibody raised in type I hypersensitivity is (CO1)
 - a) IgE
 - b) IgA
 - c) IgG
 - d) IgM
 2. The name antibody was coined by (CO1)
 - a) Von Behning
 - b) Jules Bordet
 - c) Stewart Douglass
 - d) Koch
 3. The substances inducing a specific immune response are ___ (CO1)
 - a) Antigens
 - b) Antiboies
 - c) Immunogens
 - d) Epitope
 4. HIV attacks a certain kind of cell in the immune system. Which is it? (CO4)
 - a) RBC
 - b) T Cells
 - c) Platelets
 - d) epithelial cells
 5. The rabies virus is passed on by contact with which part of an infected animal? (CO4)
 - a) Skin
 - b) saliva
 - c) Urine
 - d) Blood

SECTION – B Very short answer

- Answer any Five Questions: **5X2=10 Marks**
6. Define antigen. (CO1)
 7. Discriminate epitope and paratope. (CO1)
 8. How do haptens differ from antibodies? (CO1)
 9. Interpret the term opsonization and signify it. (CO1)
 10. What are autoantigens? (CO1)
 11. Define HDCS vaccine. (CO4)
 12. What is the difference between HIV and AIDS? (CO4)

SECTION – C Short answer

- Answer any Three Questions **3X6=18 Marks**
13. Classify immunoglobulins based on their heavy chain with distinct diagrams. (CO1)
 14. Enumerate the properties of antigens. (CO1)
 15. Specify the immunological role of each type of antibodies. (CO1)
 16. Write a note on Poliomyelitis. (CO4)
 17. Describe the causative agent, symptoms and treatment of Rabies. (CO4)

SECTION - D Long Answer

- Answer any Two Questions: 2x10 = 20 marks
18. Give an account on a) Isotype, b) Allotype, and c) Idiotype antibodies. (CO1)
 19. Analyze the genetic basis of antibody diversity. (CO1)
 20. Discuss secondary immune deficiency and AIDS. (CO4)

BIOSTATISTICS – 31CT22

SECTION – A Multiple choice questions

- Answer All Questions: **5X1=5 Marks**
1. Correlation Coefficient values lies between **CO4**
 - a. -1 and +1
 - b. 0 and 1
 - c. -1 and 0
 - d. All the above
 2. Studying the relationship of three or more variables simultaneously is called **CO4**
 - a. partial correlation
 - b. multiple correlation
 - c. rank correlation
 - d. linear correlation
 3. The term regression was used by **CO4**
 - a. Newton
 - b. Pearson
 - c. Spearman
 - d. Galton
 4. In chronological classification of data are classified on the basis of **CO1**
 - a. Geographical area
 - b. Quality
 - c. Time of occurrence
 - d. Class interval
 5. The bar diagram divided into various parts in proportion to values given in data are called **CO1**
 - a. Multiple bar
 - b. Deviation bar
 - c. Horizontal bar diagram
 - d. Sub – divided bar

SECTION – B Very Short Answer

- Answer any FIVE Questions: **5X2=10 Marks**
6. What is Correlation? **CO4**
 7. Comment on Regression coefficient **CO4**
 8. Define Probable error **CO4**
 9. State the application of correlation **CO4**
 10. What is cluster sampling? **CO1**
 11. Comment on pictogram and cartogram **CO1**
 12. Define pie diagram **CO1**

SECTION – C Short Answer

- Answer any THREE Questions: **3X5=15 Marks**
13. Explain the scatter diagram with illustration. **CO4**
 14. Describe the types of correlation with examples **CO4**
 15. Following are the rank obtained by 10 students in two subjects, Biochemistry and Bioinformatics. **CO4**

To what extent the knowledge of the students in the two subject is related?

Biochemistry	1	2	3	4	5	6	7	8	9	10
Bioinformatics	2	4	1	5	3	9	7	10	6	8

16. Discuss the various methods of collecting primary data **CO1**
17. Explain the merits and demerits of mean, median and mode **CO1**

SECTION – D Long Answer

- Answer any TWO Questions: **2X10=20 Marks**
18. Calculate the Karl Pearson Coefficient of correlation between X and Y from the following data. **CO4**

X	5	9	13	17	21
Y	12	20	25	33	35

19. Describe the various methods of graphical presentation of statistical data **CO1**
20. Calculate the arithmetic mean and standard deviation from the following data **CO1**

Weight of fishes (g)	5-15	51-25	25-35	35-45	45-55
No. of fishes	8	12	15	9	6



Evolution–31EP21

SECTION – A

MULTIPLE CHOICE QUESTIONS

Answer All Questions:

5X1=5 Marks

1. Neoteny is normally seen inCO4
a) Axolotl larva b) Necturus c) Siren d) All
2. Polyploidy can be induced byCO4
a) Colchicine b) IAA c) Sulphanilamide d) All
3. ____ coined the term macroevolution.CO4
a) Goldschmidt b) Mayr c) Dobzhansky d) Simpson
4. Darwin and Wallace were influenced by the essay of TR Malthus on:CO1
a. Principles of population b. Theory of continuity of germplasm
c. Saltatory variation d. Principles of geography
5. Genetic Drift is also known asCO1
a) Founder effect b) Sewall Wright effect c) Bottleneck effect d) Gene migration

SECTION – B

VERY SHORT ANSWER

Answer any Five Questions:

5X2=10 Marks

6. What is allometry?CO4
7. Write down the Simpson's definition of higher taxa.CO4
8. What is paedogenesis?CO4
9. Distinguish between preadaptation and postadaptation.CO4
10. What is biological wastage?CO1
11. Define: Bottleneck effect.CO1
12. How genetic drift is differ from natural selection?CO1

SECTION – C

SHORT ANSWER

Answer any Three Questions

3X5=15 Marks

13. Explain the mechanism of origin of higher categories.CO4
14. What is polyploidy? Explain its types and significance.CO4
15. Give a short account on Neo-Darwinism.CO1
16. Discuss the major role of genetic drift. Illustrate your answer with suitable examples.CO1
17. Explain the following:CO1
i. Sexual selection theory
ii. Artificial selection theory
iii. Pangenesis theory

SECTION - D

LONG ANSWER

Answer any Two Questions:

2x10=20 Marks

18. Describe the modes of origin of higher taxa.CO4
19. Analyze the causes of extinctions.CO4
20. Write an essay on Darwin's concepts of organic evolution.CO1



Applied Biotechnology–31CT41

SECTION – A MULTIPLE CHOICE QUESTIONS

Answer All Questions:

5X1=5 Marks

1. Monoclonal antibodies (MAbs) is used to ____
a) Diagnostic application b) Therapeutic uses c) Protein purification d) All the above
2. ____ is the permanent solution for genetic disease
a) Gene therapy b) SCID c) Dystrophin d) All the above
3. ____ old embryos from the *in vitro* culture are implanted in the reproductive tract.
a) 5 or 6 days b) 9 or 10 days c) 7 or 8 days d) 12 or 15 days
4. Best biofertilizers for rice is
a. Bacillus polymaxa b. Azola pinnata c. Bacillus megatherium d. Rhizobium meliloti
5. Calorific value of biogas depends upon to
a. Methane content b. CO₂ content c. Nitrogen content d. Hydrogen content

SECTION – B VERY SHORT ANSWER

Answer any Five Questions:

5X2=10 Marks

6. What is electroporation?
7. Comment on artificial insemination.
8. What is embryo cloning?
9. What is transgenesis?
10. Define IMViC.
11. Comment on Methanogenesis.
12. What are the limitations is concern for the production of biogas.

SECTION – C SHORT ANSWER

Answer any Three Questions

3X5=15 Marks

13. Explain the types of gene therapy.
14. Explain the microinjection methods.
15. Write the various human diseases.
16. Write a short account on biofertilizers and its applications.
17. Describe briefly the methods of identification of pathogens in sewage.

SECTION - D LONG ANSWER

Answer any Two Questions:

2x10=20 Marks

18. Explain the Monoclonal antibody and its applications.
19. Write a detailed account on sewage and discuss its treatment with an example.
20. Write an essay on production of biogas.



ENVIRONMENTAL BIOLOGY – 31CT42

ANSWER ALL QUESTIONS

SECTION – A

5X1=5 Marks

Multiple choice questions:

1. The total interacting animals and plants in any well defined area such as field or pond is known as
a. Biosphere b. Biome c. Community d. Ecosystem
2. The rate at which light energy is converted chemical energy of organic molecules in the ecosystem is known as
a. Net primary productivity b. Gross primary productivity
c. Net secondary productivity d. Gross secondary productivity
3. Transfer of food energy through a series of organisms is referred to as
a. Pyramid of energy b. Food web c. Nutrient cycle d. Food chain
4. The natural resources that have short recycling time or reproductive cycle is
a. Non renewable b. Renewable c. Exhaustible renewable d. Exhaustible non- renewable
5. The part of the land is not utilized at the moments which includes Arid, Rocky and sandy desert is
a. Desert b. Mountain c. Valley d. Waste land

ANSWER ANY FIVE QUESTIONS

SECTION – B

5X2=10 Marks

Very short answer:

6. Comment on Liebig's law of minimum.
7. Mention the significance of food web.
8. Comment on Shelford's law of maximum.
9. Classify natural resources based on the chemicals found in it.
10. Comment on Westerlies of Europe.
11. Define Exhaustive setup of rain water harvesting.
12. What is an Inexhaustible natural resource?

ANSWER ANY THREE QUESTIONS SECTION – C

3X5=15 Marks

Short answer:

13. What are ecosystem energetics? Describe the energy flow in a typical ecosystem.
14. Discuss why pond is considered as an ecosystem?
15. Give an illustrated account of ecological pyramids with examples.
16. Describe various resources of forest.
17. Explain various methods of rain water harvesting.

ANSWER ANY ONE QUESTIONS

SECTION – D

2x10=20 Marks

Long Answer:

18. Define Biogeochemical cycles? Discuss the role of nitrogen and phosphorous cycle in an ecosystem.
19. Write an essay on various types of monsoon and their impacts in India.
20. Describe in detail the different types of non conventional energy resources.

Biofarming Technology – 31EP41

SECTION – A Multiple choice questions

Answer All Questions:

5X1=5 Marks

1. Pisciculture' is culture of

- a. earth worm b. Prawns c. Fishes d. silkworm

2. The important food fish is

- a. Rohu b. Catla c. Wallago d. Clarius

3. The common name of *Carassius auratus*

- a. angel fish b. fighter c. gourami d. gold fish

4. _____ bee is the smallest honeybee.

- a. *Apis mellifer* b. *Apis dorsata* c. *Apis florae* d. *Apis indica*

5. *Apis* spp. belongs to order

- a. Hemiptera b. Homoptera c. Lepidoptera d) Hymenoptera

SECTION – B Very Short Answer

Answer any FIVE Questions:

5X2=10 Marks

6. Define Hypophysation

7. What is Monoculture?

8. Comment on Dactylogyrosis

9. Indicate the scope of apiculture.

10. Comment on the *Apis dorsata*.

11. What is Royal Jelly?

12. Define supersedure.

SECTION – C Short Answer

Answer any THREE Questions:

3X5=15 Marks

13. Write down the characteristics of culturable fishes

14. Describe the salient features of catla

15. Explain the principle of hypophysation technique

16. Briefly discuss the indigenous method of bee keeping.

17. Bring out the economic importance of honey.

SECTION – C Long Answer

Answer any TWO Questions:

2X10=20 Marks

18. Describe the methods of Induced spawning technique.

19. Write an essay on aquarium.

20. Give a detailed account on the biology and caste system in honey bees.