Dept. of Zoology   **I M.Sc., Zoology**   II Sessional Test
Vivekananda College   II Semester
Tiruvedakam West   Max.Marks: 50
Date: **02.03.2019**   Time: 2 Hour

Immunology – 31CT21

SECTION – A Multiple choice questions

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

1. In complement pathway cytolysis is initiated by   (CO2)
   a) Membrane degradation complex b) Membrane attacking complex
   c) Membrane dissociation   d) Lysis
2. Classical pathway of complement system involves in   (CO2)
   a) Specific defence   b) Adoptive immunity
   c) both a and b   d) Non-specific defence
3. Humoral immunity is mediated by   (CO2)
   a) B Cells   b) Macrophages
   c) T cells   d) All the above
4. Which nematode affects the lymphatic system in man?   (CO4)
   a) Wucheraria   b) Hook worm
   c) Tapeworm   d) Pinworm
5. The active fraction of Mycobacterium tuberculosis that stimulates the immunity is (CO4)
   a) Cell wall polysaccharide   b) Capsular polysaccharide
   c) Pili   d) Muramyl dipeptide

SECTION – B Very short answer

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

6. Expound the complement system.   (CO2)
7. Discriminate humoral immunity from cell mediate immunity. (CO2)
8. Expand and specify function of MAC.   (CO2)
9. Interpret the term memory cells.   (CO2)
10. State the role of macrophages in TB.   (CO4)
11. Define the escape mechanism of Mycobacterium from host immune system. (CO4)
12. Enlist the defense mechanism of the hosts.   (CO4)

SECTION – C Short answer

Answer any Three Questions   **3X6=18 Marks**

13. Enumerate the consequence of complement activation.   (CO2)
14. Explicate the significant role of T_H cells in proliferation of B cells. (CO2)
15. Analyse the immune escape mechanisms used by protozoan. (CO4)
16. Explain the role of B cells in Helminth infection.   (CO4)
17. Describe the effector function of NK cells during protozoan infection. (CO4)

SECTION - D Long Answer

Answer any Two Questions: 2x10 = 20 marks

18. Trace the classical pathway of complement activation.   (CO2)
19. Narrate the mechanism of class switch.   (CO2)
20. Elaborately explain how bacteria face immune response.   (CO4)

Dept. of Zoology   **I M.Sc., Zoology**   II Sessional Test
Vivekananda College   II Semester
Tiruvedakam West   Max.Marks: 50
Date: **04.03.2019**   Time: 2 Hours

BIOSTATISTICS – 31CT22

SECTION – A   Multiple choice questions

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

1. The term regression was used by: (CO3)
      a. Newton   b. Pearson   c. Spearman   d. Galton
2. In simple regression equation, the numbers of variables involved are: (CO3)
      a. 0   b. 1   c. 2   d. 3
3. Analysis of Variance technique was developed by   (CO4)
      a. Fisher   b. Gosset   c. Pearson   d. Miovre
4. Chi – square test was first used by   (CO1)
      a. Fisher   b. Karl Pearson   c. Gauss   d. Laphace
5. In which method of sampling, each item has equal chance to be included in the sample (CO2)
      a. Purposive sampling   b. Random sampling   c. Selective sampling   d. All the above

SECTION – B   Very Short Answer

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

6. What is F test?   (CO4)
7. Present the result table for Analysis of Variance   (CO4)
8. What is degree of freedom?   (CO3)
9. Comment on regression coefficient   (CO3)
10. What is X^2 test of goodness of fit?   (CO1)
11. Define skewness   (CO1)
12. What is mutually exclusive event?   (CO1)

SECTION – C   Short Answer

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

13. Explain the applications of F test.   (CO4)
14. Describe the methods of regression with examples   (CO3)
15. Obtain the regression equation Y on X for the following data.   (CO3)

Salinity (%)	**5**	**7**	**9**	**3**	**16**	**14**
O$_2$ content (mg/l)	**7**	**5**	**5**	**9**	**3**	**2**

16. Explain addition and Multiplication theorem of probability measure   (CO1)
17. Describe the methods of random sampling with illustrations   (CO2)

SECTION – D   Long Answer

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

18. Compare the regression analysis and correlation   (CO3)
19. The haemoglobin levels (gm %) of three groups of children fed three different diets are given below. Test whether the means of these groups differ significantly   (CO4)

Group I	Group II	Group III
11.6	8.4	10.5
10.3	8.8	10.0
10.0	7.8	10.8
11.5	8.8	9.8
11.8	9.2	9.7

(Tabulated F value for df=n$_1$=2; df=n$_2$=12 is 3.89 at P 0.05 level)

20. Write an essay on probability distribution with suitable examples   (CO1)

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Date: **05.03.2019**

II M.Sc., Zoology

II Sessional Test
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Max.Marks: 50
Time: 2 Hour

Developmental Biology – 31CT23

SECTION – A   Multiple choice questions

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

1. Which of the following is a main blood forming tissue?   (CO5)
    a) Bone marrow   b) Kidney
    c) Liver   d) Spleen
2. _____ play a key role in the regulation of hemoglobin synthesis.   (CO5)
    a) Actin   b) Myosin
    c) Glutelin   d) Globin
3. The molecular weight of thyroglobulin is   (CO5)
    a) 6,75,000   b) 6,76,000
    c) 6,77,000   d) 6,78,000
4. The region where the sperm enters the egg is called   (CO1)
    a) Equator   b) Receptor cone
    c) Animal pole   d) vegetal pole
5. Epiboly occurs in   (CO2)
    a) Cleavage   b) Oogenesis
    c) Gastrulation   d) Organogenesis

SECTION – B   Very short answer

Answer any Five Questions: **5X2=10 Marks**
6. What is metamorphosis?   (CO5)
7. Define regeneration.   (CO5)
8. What is blastema?   (CO5)
9. Classify eggs with examples   (CO1)
10. What is ovulation?   (CO1)
11. What is vitellogenesis?   (CO1)
12. What is fertilization?   (CO1)

SECTION – C   Short answer

Answer any Three Questions   **3X5=15 Marks**
13. Explain the mechanism of regeneration.   (CO5)
14. Give a brief account on stem cells.   (CO5)
15. Briefly describe the molecular biology of differentiation.   (CO5)
16. Give an account on virginal reproduction.   (CO1)
17. Explain Competent.   (CO3)

SECTION - D Long Answer

Answer any Two Questions: **2x10 = 20 marks**

18. Explain the hormonal control of amphibian metamorphosis.   (CO5)
19. Discuss elaborately the morphological, physiological and biochemical changes that takes place during amphibian metamorphosis.   .   (CO5)
20. Give a detailed account on formation and activation of ovum.   (CO1)

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Evolution–31EP21

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

1. The body structure of the australopithecines is a fascinating mixture of   …..CO5
a) Human   b) Ape   c) Intermediated traits d) All

2. *Homo erectus* were discovered in Java in   …..CO5
a) 1891   b) 1892   c) 1893   d) 1894

3. *Homo sapiens* developed from   …..CO5
a) *H. erectus*   b)*H. habilis*   c) Neanderthal man   d) Australopithecus

4. Which one of the following is a post-zygotic isolation mechanism?   …..CO3
a. Hybrid sterility   b. Hybrid inviability   c. Hybrid breakdown   d. All of these

5. In which one of the following speciation does a population split into two geographically isolated populations?   …..CO3
a. Natural speciation   b. Allopatric   c. Parapatric   d. Sympatric

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

6. Define: Altruism.   …..CO5
7. What is k in selection?   …..CO5
8. What do you mean by selfish gene?   …..CO5
9. Distinguish between phyleticspeciation and true speciation.   …..CO3
10. What do you mean bypopulation crash?   …..CO3
11. Define: Gause's law.   …..CO3
12. What is gene pool?   …..CO3

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

13.Explain thefossil history of early man.   ….CO5
14. Enumerate the characteristics of *Homo habilis*.   ….CO5
15. Summarize the various factors involved in speciation?   ….CO3
16.With suitable examples, explain the reproductive isolation.   …CO3
17. Write a short note on the patterns of speciation.   ….CO3

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

18.Discuss the various methods of dating of fossils.   …..CO5
19.Give a detailed account on cultural evolution.   …..CO5
20. Write an essay onorigin of a species.   …..CO3

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PG & Research Dept. of Zoology   **II M.Sc., Zoology**   II Sessional Test
Vivekananda College   IV Semester
Tiruvedakam West   Max.Marks: 50
Date: **02.03.2019**   Time: 2 Hour

Applied Biotechnology–31CT41

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

1. ____ infect plant tissues, in induces the formation of a plant tumor called crown gall
a) *P. fluorescens* b) *A. tumefaciens* c) Liposome fusion d) Silicon carbide fibres
2. *Agrobacterium tumefaciens* is a ___ bacterium
a) Water born, gram negative
b) Soil born, gram negative
c) Water born, gram positive
d) Soil born, gram positive
3. The use of living organism to degrade environmental pollutants is called
a. Microremediation   b. Nanoremediation   c. Bioremediation   d. All
4. Which bioremediation approach involves using plants to degrade pollutants?
a. Biopile   b. Phytoremediation   c. Composting   d. Land farming
5. Which of the following bacterium is called as the superbug that could clean up oil spils
a. *Bacillus subtilis*   b. *Pseudomonas putida*
c. *Pseudomonas denitrification*   d. *Bacillus denitrification*

SECTION – B   **VERY SHORT ANSWER**
Answer any Five Questions: **5X2=10 Marks**
6. What is Colchicine?
7. Comment on Callus.
8. What is Batch culture?
9. What is Xenobiotics?
10. Define Bioagumentation.
11. Comment on Phyto remediation.
12. What do you meant by detoxification.

SECTION – C   **SHORT ANSWER**
Answer any Three Questions   **3X5=15 Marks**
13. Explain the application of plant tissue culture.
14. Write the GM food and their types.
15. What is bioremediation? Discuss its types.
16. Discuss briefly creation of superbug and its applications.
17. Write a short account on bioremediation of ground water.

SECTION - D   **LONG ANSWER**
Answer any Two Questions: **2x10=20 Marks**
18. Explain the plant tissue culture methods
19. Write a detailed account on engineered embryonic stem cells.
20. Write an essay on solid waste treatment and disposal method.

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Dept. of Zoology   II Sessional Test

Vivekananda College   IV Semester

Tiruvedakam West   Max.Marks: 50

Date: **04.03.2019**   Hours: 2

Environmental Biology –31CT42

SECTION – AMultiple choice questions

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

1. Natural parks are coming under _____ conservations

a. In Situ   b. Ex Situ   c. conservation   d. Detoriation

2. _____ is used for obtaining data to prepare inventory of complex natural ecosystems and their regular monitoring.

a. Geographic information system   b. Satellite   c. Scanner   d. Remote sensing

3. The major source of natural emission of toxicants from wetland produced during biological decay is

a. CO_2 b. Sulphur gases   c. Nitrogen gases   d. Ozone

4. The chemical discharge includes chiefly the chemical fertilisers and various types of pesticides is

a. Industrial effluent   b. Thermal waste   c. Inorganic poison   d. Agricultural discharge.

5. The method of known quantity of toxicants which is directly injected in to the blood vessel in liquid form is

a. Intravenous injection   b. subcutaneous injection   c. injection   d. topical inj

SECTION – B   Very Short Answer

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

6. Differentiate natural and Anthropogenicradiations

7. Define the characters of gamma particles.

8. Give short account on Gaseous and particulate radio wastes.

9. Define the radiation unit RAD.

10. Comment on Ecological niche

11. Define α-diversity

12. Comment on Remote sensing

SECTION – C   Short Answer

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

13. Describe the effect of radiation as Carcinogens, teteratogens and mutagens.

14. Explain the equation $E=MC^2$ and its significances.

15. Give an account on the protection and control methods of radiation.

16. Enumerate the role of Bio-indicators in environmental monitoring.

17. Discuss about stages in ecological succession.

SECTION – D Long Answer

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

18. Write an essay on radioactive fallouts episodes and their impacts.

19. Differentiate in detail the ionising and non-ionising radiations and their effects on biological materials.

20. Discuss the various biodiversity conservation methods.

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Biofarming Technology – 31EP41

SECTION – A   Multiple choice questions

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

1.   Earthworm belongs to the class
      a. archiooligochaeta   b. neooligochaeta   c. acanthobdellida   d. Clitellata
2.   The temperature required for making quality casting is
      a. 15-20oC   b. 25-30oC   c. 5-10oC   d. 0-5oC
3.   The percentage of nitrogen in earthworm casting is
      a. 3%   b. 2%   c. 1%   d. 4%
4.   Which is common pest for the silkworm?
      a. Mosquito   b. Honey bee   c. House fly   d. Uzifly
5.   Pebrin is caused by:
      a. Tricholyga sorbillans b. Bacillus megatherium c. Spicaria prasina d. Nosema bombycis

SECTION – B   Very Short Answer

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

6.   List out the importance of earthworm
7.   What is vermiculture?
8.   What are the sources of earthworm's food?
9.   Comment on harvesting
10.   What is stifling?
11.   Comment on reeling?
12.   What is septicaemia?

SECTION – C   Short Answer

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

13.   Write down the characteristics of earthworm
14.   Discuss the Windrow method of vermicompost technology
15.   Explain the preparation of vermiwash and its applications
16.   Write a brief account on Grainage Management.
17.   Describe in brief the economic importance of silk.

SECTION – D   Long Answer

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

18.   Explain the process of vermicomposting technology
19.   Describe the role vermicompost in organic farming
20.   Give an account of the rearing of mulberry silkworm.

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