

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **M.Sc. Zoology** Degree (Semester) Examinations, April 2018 Part – III : Core Subject : Second Semester : Paper – I

IMMUNOLOGY

Under CBCS – Credit 4 Time: 3 Hours	Max. Marks: 75			
<u>SECTION – A</u> <u>Answer ALL Questions</u> : 1. Freund's complete adjuvant.	$(10 \times 2 = 20)$			
2. Immunogen.				
3. Plasma cells.				
4. Differentiate humoral from cell mediated immu	unity.			
5. Rheumatoid arthritis.				
6. When and why immunosuppressive drugs are a	administered?			
7. VSG antigen.				
8. Opsonisation.				
9. Crossed immunoelectrophoresis.				
10. 'Hot' antigen.				
<u>SECTION – B</u>				
Answer ALL Questions:	$(5 \times 5 = 25)$			
11.a) Depict and explain the general structure of it	mmunoglobin.			

b) State and explain the germline rearrangement theory.

 (\mathbf{OR})

12. a) Erytheblastosis fetalis is a consequence of hypersensitive reaction – Argue.

(**OR**)

- b) Discuss the significance of class switching.
- 13.a) Trace the reasons for graft rejection.

(**OR**)

- b) Comment on tumor antigens.
- 14. a) Brief the immunity exerted by the host against bacterial infection. (OR)
 - b) Narrate the role of B cells in helminth infection.
- 15.a) Comment on VDRL test.

(OR)

b) Elucidate the single radial immunodifusion technique.

$\underline{SECTION - C}$

Answer any THREE Questions:

 $(3 \times 10 = 30)$

- 16. Classify and explain the types of immunoglobin.
- 17. With schematic representations, explain the classical complement pathway.
- 18. Track the immunological consequences of HIV infection.
- 19. Discuss the strategies adopted by viruses to evade the host defense mechanism.
- 20. Illustrate and explain the ELISA test.





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(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **M.Sc. Zoology** Degree (Semester) Examinations, April 2018 Part – III : Core Subject : Second Semester : Paper – II

BIO-STATISTICS

Under CBCS – Credit 4

Time: 3 Hours

Max. Marks: 75

SECTION – A

 $(10 \times 2 = 20)$

1. Variance.

2. Mode.

3. Finite population.

Answer ALL Questions:

4. Standard error.

5. Regression.

6. Negative correlation.

7. Total variance.

8. ANOVA.

9. Vital statistics.

10. Demography.

of tall and dwarf in the ratio of 110:90. Test by means of chi-

SECTION – B

square whether this value is deviated from Mendel's monohybrid ratio 3:1. (Table valued for 1df at 5% level of significance = 3.84)

(**OR**)

b) A cross involving different genes gave rise to F₂ generation

12. a) Explain about null and alternate hypothesis.

Answer ALL Questions:

11.a) Give an account on tabulation.

(**OR**)

b) Give a detailed account on random and stratified sampling.

13.a) Discuss about rank correlation and its applications.

(**OR**)

b) Write a detailed note on regression lines.

14.a) Give an account on F-distribution and its applications.

(**OR**)

b) Explain about variation within treatments.

15.a) Discuss about mortality rate and fertility rate.

(**OR**)

b) Give an account on structure and applications of life table.

 $(5 \times 5 = 25)$

Answer any THREE Questions:

 $(3 \times 10 = 30)$

- 16. Give an account on normal distribution and binomial distribution.
- 17. Two horticultural plots were each divided into six equal subplots. Organic fertilizer is added to plot 1 and chemical fertilizer is added to plot 2. The yield of fruits from plot1 and plot 2 in kg/sub-plot, is given below. Can we say the yield due to organic fertilizer is higher than due to chemical fertilizers?. (Table t value (t_{0.05LS (one-tail)/10DF}) =1.812)

<u>SECTION – C</u>

Plot 1	6.2	5.7	6.5	6.0	6.3	5.8
Plot 2	5.6	5.9	5.6	5.7	5.8	5.7

18. Calculate the coefficient of correlation for the following data on the length (X in cm) and weight (Y in g) of fish.

X	5	7	3	1	9	12	8	3
Y	8	9	5	4	9	13	7	9

- 19. Write an essay on two-way classification.
- 20. Explain about the demographic characteristics of India.

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VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST

(Autonomous & Residential) [Affiliated to Madurai Kamaraj University] **M.Sc. Zoology** Degree (Semester) Examinations, April 2018 Part – III : Core Subject : Second Semester : Paper – III

DEVELOPMENTAL BIOLOGY

Time: 3 Hours	Max. Marks: 75
<u>SECTION – A</u> Answer ALL Questions:	$(10 \times 2 = 20)$
1. What is Ovulation?	
2. Define Fertilization.	
3. Define Cleavage.	
4. What is Malignancy?	
5. What is Puberty?	
6. Define Competence.	
7. What is Parturition?	
8. Define Pluripotency.	
9. What is Blastema?	
10. Define Metamorphosis.	
<u>SECTION – B</u>	
Answer ALL Questions:	$(5 \times 5 = 25)$
11.a) Describe the significance of Parthenogenes (OR)	sis.
b) Describe the mechanism of Fertilization.	
12. a) Give an account of Patterns of cleavage. (OR)	

b) Write a short note on cell lineage.

13.a) Comments on Estrous cycle.

(**OR**)

b) Enumerate the vertebrate lens neural induction.

14. a) Briefly explain about characteristics features of differentiation.

(**OR**)

b) Describe the Gene action in development.

15.a) Give an account of Wound healing.

(OR)

b) Write brief account of Morphogenesis.

<u>SECTION – C</u>

Answer any THREE Questions:

 $(3 \times 10 = 30)$

- 16. Explain the Spermatogenesis.
- 17. Write an essay on placenta formation.
- 18. Illustrate the importance of nuclear transplantation.
- 19. Write an essay on stem cells and their applications.
- 20. Give an elaborate account on role of hormones in metamorphosis.



31EP21



b) Discuss the significance of genetic drift in evolution.

- 12. a) What will happen to the protein if an aminoacid is substituted by another one? Discuss its evolutionary significance. (OR)
 - b) Genetic variation can be detected using protein electrophoresis Elucidate.
- 13. a) Comment on allopatric speciation.

(**OR**)

- b) Citing example, explain quantum speciation.
- 14. a) Comment on punctuated equilibrium.

(**OR**)

- b) Examine the causes for extinction.
- a) Reveal the technique of fossil dating.

(**OR**)

b) Cultural evolution is an evolutionary philosophy of social change – Discuss.

SECTION – C

Answer any THREE Questions:

 $(3 \times 10 = 30)$

- 16. With illustrations, explain the various types of natural selection.
- 17. Molecular clock serve as a very good evolutionary tool Deliberate.
- Isolating mechanisms are intrinsic characteristics of species that prevent. Successful reproduction with members of other species – Discuss.
- 19. Evolution has not proceeded with an uniform speed Defend.
- 20. In light of evolution, trace the fore fathers of man.

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[Affiliated to Madurai Kamaraj University] M.Sc. Zoology Degree (Semester) Examinations, April 2018 Part – III : Core Subject : Fourth Semester : Paper – I			
APPLIED BIOTECHNOLO	GY		
Time: 3 Hours	Max. Marks: 75		
SECTION – A			
Answer ALL Questions:	$(10 \times 2 = 20)$		
1. Virulence factors.			
2. Gene therapy.			
3. Vector.			
4. Expand ICSI.			
5. Callus.			
6. Germplasm.			
7. Nanoparticle.			
8. X-Ray diffraction (XRD).			
9. Biodiesel.			
10. Biodegradation.			
<u>SECTION – B</u>			
Answer ALL Questions:	$(5 \times 5 = 25)$		
11.a) Describe the molecular analysis of human (OR)	n diseases.		
b) Comment on Biomaterials and their appl	ication.		
12.a) Give an account of IVF.			

(OR)

b) Write a short note on YAC vector.

13.a) Describe the Bio-fertilizer.

(**OR**)

- b) Comment on Gm food.
- 14.a) Briefly explain about characteristics features of nanoparticles.

(OR)

- b) Briefly explain the Drug designing.
- 15.a) Give an account of Biomining.

(**OR**)

b) Write brief account on the role of biotechnology in solid waste management.

SECTION – C

Answer any THREE Questions:

 $(3 \times 10 = 30)$

- 16. Write an essay on Monoclonal antibody production and their application.
- 17. Give an account on embryonic stem cell engineering.
- 18. Illustrate the importance on Bioinsecticides and their types.
- Write an essay on nanobiotechnology and its application in medicine.
- 20. Give a detail account on the methods of biogas production.



VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST (Autonomous & Residential) [Affiliated to Madural Kamaral University]					
M.Sc. Zoology Degree (Semester) Examinations, April 2018 Part – III : Core Subject : Fourth Semester : Paper – II					
ENVIRONMENTAL BIOLOGY Under CBCS – Credit 5					
Time: 3 Hours	Max. Marks: 75				
<u>SECTION – A</u> Answer ALL Questions:	$(10 \times 2 = 20)$				
1. Food web.					
2. α-Diversity.					
3. Soil erosion.					
4. Nonconventional energy.					
5. Half life.					
6. Isotopes.					
7. Satellite town.					
8. Natality.					
9. Natural calamity.					
10. UNESCO.					
<u>SECTION – B</u>					
Answer ALL Questions:	$(5 \times 5 = 25)$				
11.a) Depict and explain the pyramid of numbers. (OR)					
b) Define and clarify Leibig law.					

12. a) Comment on the monsoons of India.

(**OR**)

- b) If water is not properly conserved, day zero is not far Discuss.
- 13.a) Give an account on air pollution.

(OR)

- b) What is acute toxicity and what are the methods used to test that?
- 14. a) Trace the impact of urbanization on the natural ecosystems.

(**OR**)

- b) The space debris problem is so critical that space may become too thrashed to use at all Discuss.
- 15.a) Enumerate the important legislations for environment protection.

(OR)

b) Comment on Man and Biosphere programme.

$\underline{SECTION - C}$

Answer any THREE Questions:

 $(3 \times 10 = 30)$

- 16. Explain the various biodiversity conservation methods.
- 17. Conservation of the natural resources is the need of the hour Discuss.
- 18. Are nuclear power plants ecologically safe? Debate.
- 19. Analyze the ecological impacts of human population explosion.
- 20. Environment can be preserved only through education and awareness Deliberate.

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31EP41

VIVEKANANDA COLLEGE, TIRUVEDAKAM WEST (Autonomous & Residential) [Affiliated to Madurai Kamaraj University] M.Sc. Zoology Degree (Semester) Examinations, April 2018 Part – III : Elective Subject : Fourth Semester : Paper – I BIO - FARMING TECHNOLOGY Under CBCS – Credit 5		12.a) Explain the lifecycle of honey bees.							
		(OR) b) Narrate the nutritive and medicinal values of honey. 13.a) Discuss the biology of mulberry silkworm.							
						Time: 3 Hours	Max. Marks: 75	(OR)	
						<u>SECTION – A</u>		b) Write a note on propagation methods	s for mulberry
Answer ALL Questions:	$(10 \times 2 = 20)$	cultivation.							
1. Vermicast.		14.a) Give an account on induced spawning	g technique.						
2. Earthworm.		(OR)							
3. Apiary.		b) Write a short note on ornamental fish culture.							
4. Newton's beehive.		15.a) Analyze the role of artificial insemination in dairy farming.							
5. Eri silk.		(OR)							
6. Moriculture.		b) Give an account on native breeds of dairy animals.							
7. Edible fishes.									
8. Gold fish.		<u>SECTION – C</u>							
9. Feeders.		Answer any THREE Questions:	$(3 \times 10 = 30)$						
10.1		16. Analyze the role of vermitechnology in	organic farming.						
10. Jersey.		17. Explain about the diseases and natural enemies of honey be							
SECTION D		18. Give a detailed account on rearing appli	iances used for						
<u>SECTION – B</u>		silkworm rearing.							
Answer ALL Questions:	$(5 \times 5 = 25)$	19. Discuss about the characteristics of cultivable fishes.							
11.a) Analyze the methods of preparation of vermiwash.		20. Write a detailed note on poultry diseases and their control							
b) Discuss the process of vermicompo	(UK) measures.								
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