



UNIVERSITY OF THE PUNJAB

Part-II : Supplementary Examination 2018

Examination:- M.A./M.Sc.

Roll No.

Subject: Zoology

PAPER: I (Environmental Biology)

MAX. TIME: 3 Hrs.

MAX. MARKS: 75

Note: Attempt any FIVE questions. All questions carry equal marks.

1.	Define EUTROPHICATION? Discuss the role of PHOSPHORUS in aquatic ecosystem.	15
2.	a. Discuss basic principles of optimal exploitation of MINERAL RESOURCES with special reference to Pakistan. b. Discuss DESALINATION as an ECOLOGICAL PROCESS.	8 7
3.	a. Discuss briefly the ENVIRONMENTAL RESOURCES. b. Define Pollution. Discuss SMOG POLLUTION.	7 8
4.	a. "COMPETITION is a strong ECOLOGICAL PROGRESS." Explain b. "PESTICIDES in modern day are necessary evil." Discuss the statement	7 8
5.	(a) Define and explain Nitrogen Cycle with the help of a diagram. (b) Write a detailed note on Dioxins.	10 5
6.	a. Why TUNDRA is regarded as the most VULNERABLE BIOME. b. Discuss the RIVER as an ECOLOGICAL SYSTEM.	7 8
7.	Define Pollution. Write a note on different sources of WATER POLLUTION. How can WATER POLLUTION be controlled?	15
8.	Write brief notes on: a. CFCs b. Desertification c. Environmental Management	5,5,5
9.	a. Discuss BIOLOGICAL WARFARE as a modern weapon. b. What is ECO-CRISES? Discuss causes and remedial measure of ECO-CRISES.	8 7



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PAPER: II (Evolution and Principles of Systematic Zoology)

MAX. TIME: 3 Hrs.

MAX. MARKS: 75

NOTE: Attempt FIVE questions: THREE from Part A and TWO from Part B.

PART A		
Q1.	Write a detail note on Kin selection.	15
Q2 (a)	How natural selection maintains polymorphism in population?	8
(b)	Discuss the factors of macroevolution.	7
Q3	Discuss reasons of imperfect adaptation in nature .	15
Q4 (a)	Give reasons of linkage disequilibrium in population.	8
(b)	Describe Zahavi's view of sexual selection in detail.	7
Q5.	Write notes on	
(a)	Coevolution	7
(b)	Density dependent selection	8
PART B		
Q6.	Describe the biological species concept and difficulties in its application.	15
Q7 (a)	Discuss the concept of subspecies.	8
(b)	Describe the authorities of First Reviser Principle.	7
Q8	Discuss pros and cones of phonetic classification.	15
Q9.	Write notes on	5x3
(a)	Taxon	
(b)	Concept of availability	
(c)	Synonym and its type	



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PAPER: III (Zoogeography & Principles of Palaeontology)

MAX. TIME: 3 Hrs.

MAX. MARKS: 75

NOTE: Attempt any FIVE questions. Select at least TWO questions from each part. All questions carry equal marks.

Part- I (Paleontology)

- Q 1: Write note on the following; (a) Trilobites (b) Use of Fossils (c) Carbon Dating (5+5+5) 15
- Q 2: Define Altered and Unaltered Fossils and processes involved in their preservation with suitable examples 15
- Q 3: Explain Eons, Eras, Periods and Epochs in a Chronological order 15
- Q 4: Explain the following; (a) Platyrrhini (b) Biosphere (c) *Loxodonta* (5+5+5) 15
- Q 5: Explain in detail the Igneous Rocks and Sedimentary Rocks (8+7)15

Part- II (Zoogeography)

- Q 6: Write a note on the following; (i) Climate as a Barrier (ii) Cosmopolitan Distribution (iii) Ancient Islands (5+5+5) 15
- Q 7: Discuss Zoogeographical Features, Climate and Fauna of Ethiopian Region 15
- Q 8: Explain different types of Barriers and Means of Dispersal for Marine animals 15
- Q 9: Give the Zoogeographical Distribution of the following animals;
- (i) Pipid Toad (ii) Chimpanzee (iii) *Hippopotamus* (iv) *Elephas* (v) Camel
- (vi) Kiwi (vii) Crocodile (viii) *Triturus* (ix) Opossum (x) *Protopterus* (1.5 each) 15
- Q 10: Explain the Continental Drift theory with different arguments in support of its evidences 15



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MAX. TIME: 3 Hrs.

PAPER: IV-3B (Physiology 'B') [Physiological systems and adaptations] MAX. MARKS: 75

NOTE: Attempt any FIVE questions. All questions carry equal marks.

- Q.1 Explain Structural organization of liver with special focus on its exocrine function.
- Q.2 Describe the structure and function of glomerulus and loop of Henle.
- Q.3 Explain cardiac cycle in detail, How it is regulated?
- Q.4 Explain in detail the function of tracheal epithelium of lungs.
- Q.5 Write a note on fine structure of heart and how ECG help to check heart function.
- Q.6 Explain physiological actions of gastrointestinal hormones.
- Q.7 Describe structure and functions of salivary glands.
- Q.8 Describe Ischemic heart disease (IHD). How stenosis is induced in IHD.
- Q.9 Write note on the following:
- Hypertension
 - Bronchial circulation
 - Liver necrosis



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Subject: Zoology

PAPER: IV-3A (Physiology -A) [Physiology of Coordination]

MAX. TIME: 3 Hrs.

MAX. MARKS: 75

NOTE: Attempt any FIVE questions. All questions carry equal marks. Support your account with illustration's where necessary.

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| Q. 1. | Discuss, in detail, the generation of cAMP as a second messenger taking the example of glucose mobilization as a response induced by cAMP. | 15 |
| Q. 2. | Discuss, comprehensively, the mechanism of action of Insulin involving Cell signaling by Receptor Tyrosine Kinase. | 15 |
| Q. 3. | Give a detailed account of abnormalities of growth hormone secretion. | 15 |
| Q. 4. | Describe, in detail, the causes and consequences of rickets in children and adults. | 15 |
| Q. 5. | a) Give a detailed account of sliding filament mechanism of muscle contraction. | 9 |
| | b) Briefly describe the functions (any three) of muscular tissue | 6 |
| Q. 6 | a) With the help of labeled figures only, show the hypothalamic control of anterior and posterior lobes of pituitary gland. | 6 |
| | b) Give a brief account of the hormones of anterior pituitary gland. | 9 |
| Q.7. | a) Give a detailed account of transmission of nerve signal to the next cell. | 10 |
| | b) Write a note on Huntington's Disease. | 5 |
| Q. 8. | Describe, in detail, the role of human ear in maintaining equilibrium | 15 |
| Q. 9. | a) Comprehensively, account, the Grand Mal Epilepsy. | 8 |
| | b) Account Focal Epilepsy, in detail | 7 |



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Subject: Zoology

PAPER: V-1 (Integrated Pest Management)

MAX. TIME: 3 Hrs.

MAX. MARKS: 75

NOTE: Attempt any FIVE questions. All questions carry equal marks.

- Q. 1. Give a detailed account on ORGANOPHOSPHATES?
- Q. 2. What are the benefits and risks of TRANSGENIC CROPS?
- Q. 3. Compare the BIOLOGICAL and CHEMICAL insecticides?
- Q. 4. Discuss INSECTICIDAL FORMULATIONS in detail?
- Q. 5. What are the mechanisms of PLANT RESISTANCE?
- Q. 6. Describe PERENNIAL and SEVERE pests in detail?
- Q. 7. Give an account on ECONOMIC INJURY LEVEL and its DYNAMICS?
- Q. 8. What are the PEST MANAGEMENT STRATEGIES and TACTICS?
- Q. 9. Write short notes on the following
 - i. Insect equivalent
 - ii. Trap cropping
 - iii. Synergist



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Subject: Zoology

PAPER: V-17 (Biological & Chemical Control of Insects)

MAX. TIME: 3 Hrs.

MAX. MARKS: 75

NOTE: Attempt any FIVE questions. All questions carry equal marks.

Q1.		Describe in detail about the steps necessary to establish biological control for a crop.	15
Q2	a	Give some positive and negative points of insecticide use.	8
	b	Describe characters of biological control agents.	7
Q3		Describe damage and control measures of five different pests of cotton.	15
Q4	a	Describe different types of predators present in rice ecosystem.	8
	b	Write a detail note on contact poisons.	7
Q5.		Describe in detail the theme, concept and rules of Integrated Pest Management?	15
Q6.		Write biology and life history of the following pests Leaf folder of rice Sugarcane borer Wheat aphid	5x3
Q7.		Write a detail note on pest and its management in forest.	15
Q8.	a	Describe different groups of insecticide on the basis chemical composition	15
	b		
Q9.		Write notes on	5x3
	a	Insecticide resistance	
	b	Inert ingredients of insecticides	
	c	Parasitoid as biological control	



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PAPER: V-22 (Vector Biology)

MAX. TIME: 3 Hrs.

MAX. MARKS: 75

NOTE: Attempt any FIVE questions. All questions carry equal marks.

- Q1. What are the vectors of dengue fever in Pakistan? Discuss their control measures. [15]
- Q2. Give name of the vectors and their control measures: [15]
- Filariasis
 - Loiasis
- Q3. Discuss Morphology, Life cycle and medical importance of Tabanids? [15]
- Q4. Discuss life cycle of the following: [15]
- Tsetse fly
 - Black fly
- Q5. Explain life cycle and Medical importance of *Dermatobia hominis*. [15]
- Q6. a. Enlist principal distinguishing characters of Anopheline and Culicine mosquitoes? [15]
- b. What are the different control measures for green bottles and blue bottles?
- Q7. Discuss Morphology, Life cycle and Control of House fly? [15]
- Q8. Give Medical Importance of the following: [15]
- Sand fly
 - Body louse



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Subject: Zoology

PAPER: V-26 (Human Embryology & Teratology)

MAX. TIME: 3 Hrs.

MAX. MARKS: 75

NOTE: Attempt any FIVE questions. All questions carry equal marks.

- Q1. DESCRIBE THE PROCESS OF **SPERMATOGENESIS** IN HUMANS
- Q2. ENLIST **ENVIRONMENTAL TERATOGENS**, WITH BRIEF ACCOUNT OF THEIR HARMFUL EFFECTS.
- Q3. DESCRIBE THE DEVELOPMENT OF **HUMAN BRAIN**, EMPHASIZING THE DEFECTS PRODUCED DURING ITS DEVELOPMENT
- Q4. GIVE A COMPREHENSIVE ACCOUNT OF THE **DEVELOPMENT OF SKIN** WITH EMPHASIS ON THE DEVELOPMENT OF **SKIN GLANDS**
- Q5. EXPLAIN IN DETAIL THE **DEVELOPMENT OF LUNGS** HIGHLIGHTING THE DEVELOPMENTAL ANOMALIES
- Q6. DESCRIBE THE **DEVELOPMENT OF BONE AND CARTILAGE**, WITH SPECIAL REFERENCE TO THEIR DEVELOPMENTAL ABNORMALITIES
- Q7. DESCRIBE NORMAL EMBRYONIC **DEVELOPMENT OF HEART** AND ITS DEPARTURES IN NEONATES
- Q8. GIVE A DETAILED ACCOUNT **GASTRULATION IN HUMANS**
- Q9. WRITE NOTES ON ANY TWO OF THE FOLLOWING
 - i. SPERM CAPACITATION
 - ii. ECTOPIC PREGNANCIES REASONS AND OUTCOMES
 - iii. REASONS OF ABORTICNS AND MISCARRIAGES