

UNIVERSITY OF BALOCHISTAN QUETTA
MA / MSc (ANNUAL) EXAMINATION .2014.

- Attention:- 1- Possession & Use of mobiles & other electronic accessories are strictly prohibited .
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Subject:-

(ZOOLOGY)

Paper:- X (Final)

Parasitology

Time Allowed :- 3 Hours

Max : Marks : **75**

Note :- Attempt any Five Questions in All But Question No. 1- in section -I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

SECTION -I (OBJECTIVE PORTION 20 MARKS)

Q.No.1

Write short answers of the following Questions.

- 1- Fill in the Blanks.
 - a. Infestation caused by fly maggots in mammals called _____.
 - b. Taenia saginata is commonly called _____.
 - c. Hydated cyst disease is caused by _____.
 - d. Malagnant malaria is caused by _____.
 - e. Scientific name of Madina worm is _____.
- 2- Choose the correct answer.
 - A. In case of server infection Entamoeba histolytica can disseminate to .
 - a. Liver b) Lungs c) Brain d) All of These.
 - B. Gyrodactylus is an ectoparasite of
 - a. Fish b) Birds c) Mammals d) None of These.
 - C) Which of the following is not symbiotic association.
 - a. Parasitism b) Mutualism c) Commensalism d) None of These.
 - D). Giardia lamblia is a.
 - a. Flagellate b) Pseudopod c) Ciliate d) Sporo zoon.
 - E) A disease is called Zoonosis when it is naturally transmitted between human and
 - a) Vertebrate host b) Inveterate host c) Insect host d) All of these.
- 3- Define any five of the following.
 - a) Anthrponosis
 - b) Phoresis
 - c) Paratenic host
 - d) Incidence
 - e) Prevalence
 - f) Infestation
 - g) Myiasis
 - h) Carriers

SECTION -II(SUBJECTIVE PORTION 80 MARKS) TIME ALLOWED 2:20

Attempt any Four (04) questions.

- Q.No.2 Write a detailed note on Various kinds of parasitic adaptations.
- Q.No.3 Describe commensalism and mutualism with at least three examples for each.
- Q.No.4 Describe Symptoms, pathogenesis and treatment of hydatosis (Hydatid cyst disesa)
- Q.No.5 What do you know about the biology, epidemiology, pathogenesis of treatment of Fasciola hepatica?
- Q.No.6 Describe Various kinds of Hosts with suitable examples.
- Q.No.7 Write a detailed account of Immunity developed by host to helminth parasites.
- Q.No.8 Describe the pathogenesis, diagnosis and treatment of cutaneous leishmaniasis Also explain its distribution in Balochistan.

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Subject:-

ZOOLOGY
Fisheries – B

Paper:-XI (Final)

Time Allowed :- 3 Hours

Max : Marks : 75

Note :- Attempt any Five Questions in All But Question No. 1- in section -I is compulsory and the time for Section- 1 is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

SECTION -I (OBJECTIVE PORTION 20 MARKS)

Note: Give the short answers of any ten questions.

Marks: 20

1. Difference between aquaculture and fish culture?
2. Define endemic species?
3. Define the term fish?
4. Define the difference between hatchery and fish farms?
5. Define the term fish feed?
6. Define the term fish pond?
7. Define the difference between fry and fingerling?
8. What is nursery pond?
9. What is fertilizer?
10. What are the objectives of artificial feed in fish culture?
11. Write only the names of bacterial diseases in fishes?
12. What is gas bubble diseases in fishes?
13. What is induced spawning?
14. What is fish farming?
15. Give at least two examples of cool water species?

SECTION -II(SUBJECTIVE PORTION 55 MARKS) TIME ALLOWED 2:20

Attempt any Four (04) questions.

- Q. No.2: Define fish preservation techniques? Also described the methods used for preserving fish?
- Q.No.3: Define in detail the selection of species used for fish culture?
- Q.No.4: Define in detail the management of fish pond?
- Q.No.5: Define different methods used to diagnose and control of fish diseases?
- Q.No.6: Explain in detail the variety of aquatic insects and birds that act as enemy in fish culture?
- Q.No.7: Write a note on integrated fish farming?
- Q.No.8: Define the natural and artificial breeding methods used in fish farming?
- Q.No.9: Define in detail the types of fish feeds?
- Q.No.10: Define in detail the history and significance of aquaculture?

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Subject:- **(ZOOLOGY)** Paper:- **X (Final)**
Entomology-A

Time Allowed :- 3 Hours

Max : Marks : 75

Note :- Attempt any Five Questions in All But Question No. 1- in section -I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

SECTION -I (OBJECTIVE PORTION 20 MARKS)

- Q.No.1 Write short answers of the 15 following Questions.
- 1- What is micotrichia?
 - 2- What is cardo?
 - 3- Define the term Gena.
 - 4- What is Jugam?
 - 5- Define the Prognathous head.
 - 6- Define the term elytra.
 - 7- What is labrum, in inset?
 - 8- What is Scape?
 - 9- Define Setaceous type of antenna.
 - 10- What is Costa?
 - 11- Define the prothoracic segment.
 - 12- Define the tem tibia.
 - 13- Define the compound eyes in Inset.
 - 14- What is ovipositor.
 - 15- Define the term crop.
 - 16- What is Phytophageous Insect.
 - 17- Function of malpighian tubules.
 - 18- What is Spiracles?
 - 19- Define the tracheal gills.
 - 20- Define the heart in Insect.
 - 21- Function of accessory glands in male insect.
 - 22- What is protocerebrum?
 - 23- Define the ventral sympathetic nervous system.
 - 24- What is Ametabola?
 - 25- Types of Metamorphosis.

SECTION -II (SUBJECTIVE PORTION 80 MARKS) TIME ALLOWED 2:20
Attempt any Four (04) questions.

- Q.No.2 Describe the generalized type of Mouth parts in Insect.
- Q.No.3 What is antenna? Parts of antenna and disuses the function also.
- Q.No.4 Describe the Various parts of Insect leg.
- Q.No.5 Describe the process of digestion and absorption in Insect.
- Q.No.6 What is excretion, Describe the physiology of excretion.
- Q.No.7 Describe the Nervous system in Insects.
- Q.No.8 Define the reproduction. Describe the male reproductive system.
- Q.No.9 What is Haemolymph? Discuss the circulatory system in Insects.
- Q.No.10 Write a short notes on the following.
- 1- Siphoning type of month parts
 - 2- Filter Chamber.
 - 3- Trachea.

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SUBJECT: - ZOOLOGY PAPER: - IX (Final)

Zoogeography and Paleontology

Time Allowed: 3 Hours

Max. Marks: 75

Note: Attempt any Five Questions but Question No. 1 in Section –I is compulsory and the time for Section –I is only 40 Minutes. After Expiry of the Time, the Paper should be handed over to the Supervisory Staff.

SECTION- I (15 Marks)

Q. 1. Give Short Answers – (Attempt All)

- | | |
|---------------------|----------------------------|
| I. MAGMA | II. FAUNISTIC ZOOGEOGRAPHY |
| III. OCEANIC ISLAND | IV. CARBONIZATION |
| V. MINERALIZATION | VI. INDEX FOSSILS |
| VII. MIGRATION | VIII. PALEOECOLOGY |
| IX. NEOGAEA | X. SPECIATION |
| XIII. EXTINCTION | XIV. BIOSTRATIGRAPHY |
| XV. ERA | |

SECTION – II

MARKS 60

Time Allowed 2: 20

Note: - Attempt any four Questions. All Questions carry equal marks.

S. No.	Questions
Q. 2	Write a note on MESOZOIC Life.
Q. 3	Discuss about Zoogeography of Pakistan in detail.
Q. 4	Write a note on TRILOBITES.
Q. 5	Write a note on ETHIOPIAN Region.
Q. 6	What is Carbon Dating? Explain.
Q. 7	What are Barriers and means of Dispersal for Aquatic Animals?
Q. 8	What is Micropaleontology? Explain about the uses of Foraminifers in Petroleum.
Q. 9	Write a note on Geological Time Scale.
Q. 10	Write short notes: a. Coastal Zone b. Deep Sea.

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UNIVERSITY OF BALOCHISTAN QUETTA
M.A./M.Sc. (ANNUAL) EXAMINATION -2014

Subject: Zoology
Time Allowed: 3 hours
Max. Marks: 75

Paper: VIII-Evolution & Principles of Systematic zoology
(Final)

- Note:**
1. **Question No.1, is compulsory**, which should be attempted on separate sheet. Time allowed for this part is 40 minutes and should be handed over to the supervisory staff on the expiry of this time.
 2. Attempt any **four** questions from Section-II, selecting **two** questions each from **Part-A** and **Part-B**. All questions carry equal marks.

SECTION-1 (OBJECTIVE PORTION, 15 MARKS)

Q.1 Write brief answers to any **15** questions of the following

1. What do you mean by organic evolution?
2. Discuss merits and demerits of Lamarckism?
3. What is Neo-Darwinism?
4. What is Mullerian mimicry?
5. What is difference between immigration and migration?
6. What are the terms compression and impression?
7. What are petrified fossils?
8. What is atavism?
9. What is meant by Adaptedness or Fitness?
10. What is adaptive radiation?
11. What is mosaic evolution?
12. What is mutational equilibrium?
13. What is selection pressure?
14. What do you know about stabilizing selection?
15. What is difference between analogous structures and homologous structures?
16. What is systematics?
17. What is orthogenesis?
18. What is range of authority code?
19. What is binomial and trinomial nomenclature?
20. What is homonym and synonym?
21. What is cohesion species concept?
22. Define weighing of characters?
23. What is role of genetic drift in evolution?
24. What is type method?
25. Briefly discuss the role of isolation in evolution?

SECTION-II (SUBJECTIVE PORTION, 60 MARKS)

Attempt any **four** Questions, selecting **two** questions each from **Part-A** and **Part-B**

Part-A (Principles of Systematic Zoology)

- Q.No.2: Explain the contribution of systematic in Taxonomy. (12)
- Q.No.3: Give an account of nominalistic species concept and polytypic species concept. (12)
- Q.No.4: Describe the history of Taxonomy. (12)
- Q.No.5: Write short notes on any three of the followings: (12)
- a) Phylogenetic systematics (cladistics)
 - b) Properties of scientific names of taxa
 - c) Multidimensional species concept
 - d) Intraspecific categories

Part-B (Evolution)

- Q.No.6: Describe the factors involve in the microevolution. (15)
- Q.No.7: Describe the theory of phyletic gradualism and punctuated equilibrium in detail. (15)
- Q.No.8: What is sexual selection? Describe different theories related to this concept. (15)
- Q.No.9: Write short notes on any three of the followings: (15)
- a) Genetic Drift
 - b) Lamarckism
 - c) Modern synthesis theory
 - d) Levels of Selection

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Subject: Zoology

Paper X final

Fisheries A Time allowed: 3 Hours

Max: Marks : 75

ATTEMPT ANY FIVE QUESTIONS IN ALL, INCLUDING QUESTION NO.1, WHICH IS COMPULSORY. TIME ALLOWED FOR QUESTION NO.1 IS 40 MINUTES. AFTER 40 MINUTES PAPERS SHOULD BE HANDED OVER TO THE SUPERVISORY STAFF

PART I: OBJECTIVE (15 Marks)

ATTEMPT ANY 15 QUESTIONS. ALL QUESTION CARRY EQUAL MARKS

Q.NO.1

- i) What are barbels?
- ii) What are fins?
- iii) Give examples of paired and unpaired fins.
- iv) What is meant by anadromous?
- v) Define baitfish?
- vi) What is the function of operculum?
- vii) Define plankton?
- viii) What is the difference between diadromous and amphidromous?
- ix) What is the zoological name of gulfam?
- x) What are the reasons of fish migration?
- xi) Example of snaked head fish.
- xii) What is oceanodromous?
- xiii) Write the common name of Rita rita.
- xiv) Write the name of fish having swim bladder.
- xv) What is the function of caudal fin?
- xvi) Write the names of exotic fishes.
- xvii) Write the name of fish which lives in cool running water.
- xviii) Write the name of any cartilage fish.
- xix) What is adipose eyelid?
- xx) Write the names of fishes found in Hanna Urak Fish Hatchery Quetta.
- xxi) Write the family name of fish *Tor pituitora*?
- xxii) List few ways to determine the age of fish.
- xxiii) What are spiracles?
- xxiv) What are viviparous fishes?
- xxv) What is fecundity?

PART: II (SUBJECTIVE)

Time allowed 02 hours 20 minutes

Max marks: 60

Attempt any four questions from this section. All questions carry equal marks.

- Q.2. Explain the morphology of fish in detail.
- Q.3 What do you know about the biology of commercial food fishes of Pakistan?
- Q.4 Discuss in detail the feeding habits of fishes.
- Q.5 What is digestion? Discuss the digestive system of carnivorous fish.
- Q.6 What are those factors affecting the growth rate in fishes?
- Q.7 What is fish migration? Discuss the classification of fish migration.
- Q.8 Provide a detail note on sexual maturity of fishes.
- Q.9 How age and growth are determined in fishes?
- Q.10 Write short notes on any two of the following.
 - i) Scales in fishes
 - ii) Factors affecting food consumption
 - iii) Sexual diamorphism

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Subject: Zoology/ Paper 11th, Entomology- B

Max. Marks: 75

Time Allowed: 03 hours

Note: Attempt any five questions, Question No. 1 is compulsory. Forty (40) minutes are fixed for question No. 1. After completing/attempting Q. No. 1, the answer sheet should be handed over to the examiner.

Part I: Objectives

Time allowed: 40 minutes

Marks: 20

Q. No. 1: Attempt any twenty (20) questions out of 25. All question carry equal marks.

1. Define Hyper-Metamorphosis?
2. What do mean by the term "Odonata"?
3. Define Ametabolous
4. How is Grass hopper differs from Locust?
5. Enlist name of any three aquatic insects?
6. Define the term Paurometabolous
7. What type of mouth parts found in butter flies?
8. Name the larvae of Chaffer beetle.
9. Define "Mallopagha"
10. Mention importance of Fire-fly in one line
11. Explain the term "Sipunculata"
11. Define insecticide
12. What are chlorine compounds?
13. What is fumigant?
14. Define predator
15. Define economic injury level
16. Name the male genitalia of insect
17. Enlist four medically important insect
18. What types of legs are found in ground beetle?
19. Define Paedogenesis
20. Mention the importance of "Lac insects" in two lines
21. What are exocrine glands?
22. What is Antlion?
23. Define "Biological control"
24. Define "drone bee?"
25. Define a pest and parasite

PART 2: SUBJECTIVE

Marks: 55

Note: Attempt any four (4) questions in all, two from each section. Question No. 9 is compulsory.

Section 1:

Q. No. 2: Write a detailed note on Order "ORTHOPTERA" OR "COLEOPTERA." 13

Q. No. 3: Write short notes on any two of the following: 13

- a). Bed bug (b). Dragon flies
- (c). Cicada (d). Red flour beetle

Q. No. 4: Classify the class Insecta up to Order levels showing diagrammatic feature.

Q. No. 5: (a) Why is honey bees called social and beneficial insect? 13

(b) In what respect worker bee differ from drone bee?

(c) Describe the Biology and life history of queen bee.

Section 2:

Q. No. 6: Explain the biology, host plant, damage, distribution, life-cycle and control of any fruit pest of Balochistan province. 13

Q. No. 7: Write down an essay on Chemical control of insect.

Q. No. 8: Why is "Quetta borer" called "Long-horn beetle"? Describe its biology, life-cycle and control measure.

Q. No. 9: Match the following insect pests correctly with their scientific name/Family/Order or Host Plants given below in the table. 16

a. Lemon butter fly	<i>Agrotis segetum</i>
b. Mole cricket	Peach
c. Potato tuber moth	Tortricidae
d. Hairy cater pillar	<i>Papilio polytes</i>
h. Codling moth	Lymanthridae
i. Turnip moth	Grylloblatodea
j. House fly	Diptera
k. Green peach aphid	<i>Phthorimaea operculella</i>

Q. No.10: Write short notes on any three from the following headings. 12

- a). Economic damage (b). Integrated Pest Management (c). Mechanical control
- d). Human malaria mosquito (e). Termites

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UNIVERSITY OF BALOCHISTAN, QUETTA
MA/M.Sc (ANNUAL) Examination, 2014

Subject: ZOOLOGY

Paper: Cell Biology & Biochemistry

Paper: I (Previous)

Time Allowed: 03 Hours.

Max. Marks: 75

Note: Attempt any five questions in all. Question No.1 is compulsory and the time for question No.1 is only 40 minutes. After 40 minutes the paper should be handed over to the examiner.

Section – 1 (Objective)

Marks: 15

Attempt 15 questions out of 25. All questions carry equal marks.

1. Name any four amino acids.
2. Define "Pentose phosphate pathway".
3. What is "ATP"?
4. Define "Biochemistry".
5. What does "FAD" stands for.
6. Define "Glycogenolysis".
7. Define "ETC".
8. Define "Gluconeogenesis".
9. What is Nucleotide?
10. What are the products of "Urea cycle"?
11. Define "Trp" operon.
12. What does "Lac operon" stands for?
13. What is "cytochrome"?
14. What is "NAD"?
15. Define DNA polymerase.
16. Define lysosome.
17. Sketch complete structure of DNA.
18. Draw labeled structure of Nucleus.
19. Define Nucleotide.
20. Define DNA replication and transcription.
21. What is central Dogma?
22. Define Northern blotting.
23. Define Chylomicron.
24. Define Nitrogen fixation.
25. Name stop codons.

Section.2 (Marks-60)

Time allowed: 2:20

Subjective

Note: Attempt any four questions, selecting two questions from each section. All questions carry equal marks.

Marks: 60

Part-1 (Cell Biology)

- Q.No.2 Write in detail "Protein Synthesis". (15)
- Q.No.3 Describe "DNA" replication in Eukaryotes or prokaryotes. (15)
- Q.No.4 Explain in detail different steps of Recombinant technology. (15)
- Q.No.5 Describe Structure & functions of Mitochondria in detail. (15)

Part-2 (Biochemistry)

- Q.No.6 Sketch "Kræbs cycle" and label transamination. (15)
- Q.No.7 Write in detail "Electron transport Chain". (15)
- Q.No.8 Describe in detail "Glycolysis". (15)
- Q.No.9 Describe Biosynthesis of any two amino acids". (15)
- Q.No.10 Write a short Note on any two of the followings:

- a) Endoplasmic reticulum. (7.5)
- b) Nitrogen Cycle. (7.5)
- c) Urea Cycle. (7.5)

THE END

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SUBJECT: - Zoology.

PAPER: - II (Prev)

Animal diversity and wildlife.

Time Allowed :- 3 Hours.

Max:Marks: 75

Note: Attempt any five questions in all but question no. 1 in section -1 is compulsory and the time for section -1 is only 40 minutes. After expiry of the time paper should be handed over the examiner.

Section -1 (15 Marks)

Q. 1 Write Short Answers of the Following (Attempt any 15 Questions)

a) Differentiate the followings:

- 1) Silver fish and Jelly fish.
- 2) Ectoderm and Endoderm.
- 3) Diploblastic and Triploblastic.
- 4) Asexual and Sexual Reproduction.
- 5) Chordata and Vertebrata.
- 6) Tick & mites.

b) Define the following terms:

- 7) Civets and Cats.
- 8) Endoparasite.
- 9) Nephridia.
- 10) Vulture.
- 11) Green Turtle.
- 12) Plankton.
- 13) W.W.F
- 14) Breeding and Captivity.

c) Write true or false accordingly:

- 15) Cray fish is a bony fish.
- 16) Hemichordata, Chordata and Echinodermata are deuterostomes.
- 17) Scorpion are centipede.
- 18) Panda is found in Pakistan.
- 19) Amphibians has metanephric type of kidneys.
- 20) Vipers possess hollow fangs.

Section -II (60 Marks) TIME ALLOWED 2:20

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

- Q. 2 Discuss the evolutionary prospective of Protozoa.
- Q. 3 Which are the first bilaterally symmetrical animals. Discuss their mode of evolution from diploblastic to triploblastic.
- Q. 4 Write an essay on origin and evolution of mammals.
- Q.5 Discuss any two endangered species of Pakistan.
- Q.6 Discuss the evolutionary pressures that forced the amphibians to adapt the terrestrial life.
- Q. 7 Discuss why the Birds are called as glorified reptiles.
- Q. 8 Write a detailed note on wildlife management in Pakistan.
- Q.9 Discuss the evolutionary changes occurred in the heart of the vertebrates.
- Q. 10 Listout various game parks in Pakistan. What type of fauna always remain at risk.

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Subject:- **ZOOLOGY**
Physiology and Animal behavior

Paper:- **III (Prev)**

Time Allowed :- 3 Hours

Max : Marks : 75

Note :- Attempt any Five Questions in All But Question No. 1- in section –I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

SECTION –I (OBJECTIVE PORTION 15 MARKS)

Question 1.

ATTEMPT ANY 15 QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS

1. What is hyperpolarization
2. What is axonal propagation
3. Define buoyancy 468
4. What is hypothalamo- hypophysial Axis
5. Discuss angiotensin I
6. What is ovulation
7. Define dead space in respiration
8. What is the dipnoan lung
9. Discuss briefly glomerular filtration rate (GFR)
10. What is mutual vigilance
11. Why do animals court
12. What is synchronization
13. State the main character of chemical synaptic transmission
14. List four mechanoreceptors in animals
15. Name the photosensitive chemical and the structures where present in photoreceptors
16. Define electrocardiography.
17. Define placentation.
18. Define briefly mean arterial pressure
19. what is the role of microvilli in intestinal absorption
20. what is osmoregulation
21. what are the rectal glands
22. what is torpidity in temperature regulation in animal
23. Define conflict behavior.

SECTION –II(SUBJECTIVE PORTION 60 MARKS) TIME ALLOWED 2:20

Note:- Attempt any Four Questions from this section. Selecting Three Questions from Part – I and One Question from Part – II. All questions carry equal marks.

Part-I

2. What do you know about myogenic and neurogenic hearts?
3. Discuss the role of pacemaker neurons in the regulation of respiration
4. Write short notes on the following
 - (a) Gastrin
 - (b) Pancreas
 - (c) Hibernation
5. Explain the mechanism of resting membrane potential in vertebrates.
6. Discuss the physiological mechanisms in vertebrates photoreception
7. Give an account of nervous regulation of cardiac activity
8. Describe the mechanisms in exchange of oxygen and carbon dioxide at the respiratory surface in the vertebrates.

Part II

Note: Attempt any one Question from this section. All Questions carry 15 Marks.

9. Explain development of behavior in animals.
10. Write short notes on the following
 - (a) Social behavior
 - (b) Sexual Isolation
 - (c) Conflict behavior

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Subject:- **(ZOOLOGY.)** Paper:- IV (Prev)
Genetics & Biostatistics.

Time Allowed :- 3 Hours

Max : Marks : 75

Note :- Attempt any Five Questions in All But Question No. 1- in section –I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

SECTION –I (OBJECTIVE PORTION 20 MARKS)

- Q.No.1 Write any 15 out of 20.
1. Define continuous variation.
 2. What do you mean by loci?
 3. Define heterozygous hybrid.
 4. What is Rh-Antigen.
 5. Name the genes for blood group A.
 6. Define polyploidy.
 7. What is Epistasis?
 8. Describe lethal gene in two line.
 9. Define Lygus type of sex determination.
 10. Define "Chaisma"
 11. Define Gene imkage with example.
 12. What do you mean by pleiotropism?
 13. Define Gene frequency.
 14. Gives two example of phenotypes.
 15. Define Gene therapy?
 16. Give t-test formula.
 17. Write Z-test formula.
 18. Define Mean and mode.
 19. Enlist the type of Regression.
 20. Give the formula of Range.

SECTION –II(SUBJECTIVE PORTION 80 MARKS) TIME ALLOWED 2:20

Attempt any four Questions, selecting three questions from section A & one question from section B

Section-A (Genetics)

- Q.No.2 Explain the mechanism of inbreeding in detailed?
- Q.No.3 What is operor concept? Discuss lactose operon and its control?
- Q.No.4 Define Gene cloning? Explain essential steps of obtaining clone of a DNA.
- Q.No.5 Explain that crossing over increases the genetic variation during Biological evolution?
- Q.No.6 Describe the diagrammatic explanation of DNA transformation in Bacteria?
- Q.No.7 What do you mean by Mutation? Explain Various types of mutation in living organisms?
- Q.No.8 Discuss in detail various hereditary diseases in Human?

Section-B (Biostatistics)

- Q.No.9 In a survey conducted against Congo virus 25 male and 75 female were found infected expected values for both were. 50. evaluate the data using chi-square test at 0.05p. (tabulated value is 3.84 at df 01)
- Q.No.10 Write a short note on only two of the followings.
- a. Presentation of statistical data
 - b. History of statistics
 - c. Draw a histogram showing the effectiveness of different antibiotics i.e 25% erythromycin, 35% ampiclox and 40% clarithromycin.



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2- If any candidate show / Marks his / her identity in the answer book , he / she will be
disqualified for the said paper .

Subject:- **(ZOOLOGY)** Paper:- **V(Prev)**
Environmental

Time Allowed :- 3 Hours

Max : Marks : 75

Note :- Attempt any Five Questions in All But Question No. 1- in section –I is compulsory and the time for Section- I is only 40 Minutes. After Expiry of the Time paper should be handed over to the supervisory staff.

SECTION –I (OBJECTIVE PORTION 20 MARKS)

Q.No.1 Write short answers of the following 15 Questions.

1. Water pollution
2. Phosphors cycle.
3. Noise pollution
4. Carbon cycle
5. Soil erosion
6. Radiation
7. Ecological Niche
8. Thermodynamics
9. Effect of green house
10. O zone de depletion
11. Estuarine
12. Pesticide
13. Deforestation
14. Organ chlorine
15. DDT
16. Fog and smog
17. Herbicides
18. Eutrophication
19. Biome
20. Global warning

SECTION –II(SUBJECTIVE PORTION 80 MARKS) TIME ALLOWED 2:20

Attempt any Four (04) questions.

- Q.No.2 Define ecosystem Describe fully the structure of a fresh water Ecosystem
- Q.No.3 What is food chain Discuss various trophic levels in food chain mainly involving fish.
- Q.No.4 Write an essay on ecological pyramids.
- Q.No.5 What is the energy flow. Explain fully the concept of energy flow with a diagram in any Community.
- Q.No.6 Define biotic community describe fully its main characters.
- Q.No.7 Discuss in detail the effects of heavy metals on aquatic life.
- Q.No.8 What are the natural resources explain the mineral resources of the provinces.
- Q.No.9 What are the biogeochemical cycle- Discuss fully the account of water cycle in nature.
- Q.No.10 Describe the inter specific and intra specific relationships Explain how these relation ships maintain the size and distribution of population.



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Subject: Zoology (Development Biology) Paper- vi (prev.)

Time Allowed: 3 Hours

Max: Marks: 75

Note: Attempt any five Questions in all, including Question No.1 which is compulsory. Time for Question No.1 is 40 minutes. After 40 minutes paper should be handed over to the supervisory staff.

Part- 1 (Objective)

15 Marks

Q.No.1:- Attempt only 15 questions out of 25 questions. All questions carry equal marks.

- (i):- What is Polyspermy?
- (ii):- Define the term evagination.
- (iii):- What is Karyokinesis?
- (iv):- What do you know about compact morula?
- (v):- What is function of amniotic fluid?
- (vi):- What do you mean by chemotaxis?
- (vii):- Define superficial cleavage.
- (viii):- What is blastocyst?
- (ix):- What is E.cadhrin?
- (x):- Define morphological metamorphosis.
- (xi):- Define epiboly.
- (xii):- What is function of micropile?
- (xiii):- Define primitive streak.
- (xiv):- What is implantation?
- (xv):- What is Organizar concept?
- (xvi):- Define gray crescent.
- (xvii):- Define extra embryonic membranes.
- (xviii):- What is maximum life span of tortoise?
- (xix):- Define fate map.
- (xx):- What is totipotency?
- (xxi):- What is difference between epimere and hypomere.
- (xxii):- What is cumulus.
- (xxiii):- What is evocation?
- (xxiv):- Define dextral spiral cleavage.
- (xxv):- What do you mean by ICS?

Part- II. (Subjective)

Time Allowed: 2:20

Marks=60

- Q. No.2:- What is cleavage? Explain the mammalian cleavage.
- Q.No.3:- What is Gastrulation? Discuss how does primitive streak form in birds?
- Q.No.4:- What is neurulation? Describe primary neurulation in vertebrates.
- Q.No.5:- What is acrosome reaction? Describe the acrosome reaction in sea urchin.
- Q.No.6:- What is induction? How does ectoderm react to inducers?
- Q.No.7:- Write a detail note on determinate and indeterminate development.
- Q.No.8:- Give an account on limb regeneration in salamanders.
- Q.No.9:- What is infertility? Discuss the causes of infertility.
- Q.No.10:- What is animal cloning? Explain cloning with the help of "Dolly" development.

THE END