

# Nalanda Open University

## Annual Examination - 2013

### B.Sc. Zoology (Honours), Part-I

#### Paper-I

**Time: 3.00 Hrs.**

**Full Marks: 80**

Answer any five questions. **Q. No. 1** is compulsory. All questions are of equal value.

1. Multiple choice questions: (Each carries **two** marks)
  - (i) Two types of nucleus are found in  
(a) Vorticella (b) Paramecium (c) Amoeba (d) Euglena
  - (ii) Sponges are:  
(a) Pelagic (b) Sessile (c) Planktonic (d) None of these
  - (iii) Microfilaria is the larva of:  
(a) Tapeworm (b) Pinworm (c) Roundworm (d) Filarial Worm
  - (iv) Obelia Colony is :  
(a) Monomorphic (b) Dimorphic (c) Trimorphic (d) Pentamorphic
  - (v) Aphrodite is commonly called as:  
(a) Paddle Worm (b) Scale Worm (c) Sea Worm (d) Lug Worm
  - (vi) The body cavity of leech is filled with:  
(a) Coelomic fluid (b) Connective tissues (c) Parenchyma (d) Botryoidal tissues
  - (vii) Trochophore is the larva of  
(a) Earthworm (b) Leech (c) Nereis (d) Lumbricus
  - (viii) Respiratory organs of starfish is :  
(a) Pedicellariae (b) Body wall (c) Papulae (d) Podia
2. Give an account of parasite which causes amoebic dysentery in man.
3. Describe the life cycle of *Wuchereria bancrofti*.
4. Describe the different types of mouthparts in insects.
5. Give an account of affinities of *Balanoglossus*.
6. Describe the respiratory system of *Unio*.
7. Describe excretory system of Leech and *Nereis*.
8. Give an account of larval forms of Echinodermata.
9. Describe digestive system of *Palaemon*.
10. Write short-notes on any two of the following:  
(a) *Micracidium* larva (b) Planula larva (c) Polymorphism (d) Hepatopancrease.



# Nalanda Open University

## Annual Examination - 2013

B.Sc. Zoology (Honours), Part-I

Paper-II

**Time: 3.00 Hrs.**

**Full Marks: 80**

Answer any five questions. All questions are of equal value.

1. Describe Carbon Cycle.
2. Give an account of Causes of air pollution and its control.
3. Describe parental care in amphibia.
4. Give an account of migratory behaviour in birds.
5. Describe biological clock and its significance.
6. Give an account of lac culture in India.
7. Give three zoological names of paddy pests and describe life cycle of any two of them.
8. How does energy flow in an ecosystem.
9. What is food chain? Describe different food chains with examples.
10. Write short-notes on any two of the following:
  - (a) Acid rain
  - (b) Bee dance
  - (c) Innate behaviour
  - (d) Food Web



**Nalanda Open University**  
**Annual Examination - 2013**  
**B.Sc. Zoology (Subsidiary), Part-I**  
**Paper-I**

**Time: 3.00 Hrs.**

**Full Marks: 80**

Answer any five questions. All questions are of equal value.

1. Describe the conjugation in Paramecium.
2. Describe life cycle of obelia.
3. Give an account of digestive system of Pila.
4. Describe affinities of Balanoglossus.
5. Give an account of Ultra structure and functions of mitochondria.
6. Write an essay on Darwinism.
7. Describe structure of RNA.
8. Give an account of digestive system of Prawn.
9. Write about significance of linkage.
10. Write short-notes on any *two* of the following:
  - (a) Statocyst
  - (b) Miracidium larva
  - (c) Polymorphism
  - (d) Nephridia



**Nalanda Open University**  
**Annual Examination - 2013**  
**B.Sc. Zoology (Honours), Part-II**  
**Paper-III**

**Time: 3.00 Hrs.**

**Full Marks: 80**

Answer five questions. All questions are of equal value.

1. Describe retrogressive metamorphosis in Herdmania.
2. Give an account of respiratory system in Scoliodon.
3. Describe the general characters and affinities of Dipnoi.
4. Give an account of biting mechanism of a poisonous snake.
5. Describe the respiratory organs and mechanism of respiration in Pigeon.
6. Describe structure and affinities of Branchiostoma.
7. Classify amphibia upto orders giving characters and suitable examples.
8. Give an account of distribution, characters and affinities of Prototheria.
9. Write an essay on "Origin of Birds".
10. Write shorts notes on any two of the following :
  - (a) Oral hood
  - (b) Echidina
  - (c) Crop of Pigeon
  - (d) Tadpole larva.



**Examination Programme, 2013**

**Bachelor of Science, Part-II**

**All Honours Subjects (B.Sc., Part-II के सभी विद्यार्थियों के लिए)**

**(Except B.Sc. Geography & Home Science)**

**(B.Sc., Part-II भूगोल और गृह विज्ञान को छोड़कर)**

<b>Date</b>	<b>Paper</b>	<b>Time</b>	<b>Name of Examination Centre</b>
03/6/2013	HONOURS PAPER – III	3.30 to 6.30 pm	Nalanda Open University, Patna
05/6/2013	HONOURS PAPER – IV	3.30 to 6.30 pm	Nalanda Open University, Patna
07/6/2013	(SUB.) (Botany -II)	8 to 11 am	Nalanda Open University, Patna
08/6/2013	(SUB.) (Math -II)	8 to 11 am	Nalanda Open University, Patna
10/6/2013	(SUB.) (Chemistry - II)	8 to 11 am	Nalanda Open University, Patna
11/6/2013	(SUB.) (Geography -II)	8 to 11 am	Nalanda Open University, Patna
12/6/2013	(SUB.) (Physics- II)	8 to 11 am	Nalanda Open University, Patna
13/6/2013	(SUB.) (Zoology - II)	8 to 11 am	Nalanda Open University, Patna
15/6/2013	(SUB.) (Home Science II)	8 to 11 am	Nalanda Open University, Patna
19/6/2013	Hindi 100 orUr 50+Hn50	3.30 to 6.30 pm	Nalanda Open University, Patna

**Nalanda Open University**  
**Annual Examination - 2013**  
**B.Sc. Zoology (Honours), Part-II**  
**Paper-IV**

**Time: 3.00 Hrs.**

**Full Marks: 80**

Answer ***five*** questions. All questions are of equal value.

1. Give a comparative account of integument of amphibia and mammal.
2. Compare the aortic arches of amphibia with that of Aves.
3. Give a comparative account of brain of reptile and mammal.
4. Give the structure of kidney of bird and compare with that of mammal.
5. Describe different types of placenta and functions in mammal.
6. Describe development of heart in chick.
7. Give an account of extra embryonic membrane in chick.
8. Give an account of comparative account of heart of reptile and bird.
9. Give an account of structure of Hen's egg.
10. Write shorts notes on any two of the following :
  - (a) Gastrulation
  - (b) Telolecithal
  - (c) Tricupsid valve
  - (d) Sweat gland



**: Important Notice :**

**Programme of B.Sc. Part-II, Zoology (Hons.) Practical Counseling Class and Examination, 2013.**  
**Venue : 4th Floor, Biology Lab, Nalanda Open University, Biscoumaun Bhawan, Patna.**

**A. Practical Counseling Class**

Date	Papers	Time
20.06.13 to 21.06.13	III & IV	08.30 A.M - 12.30 P.M

**B. Practical Examination**

Date	Papers	Time
22.06.2013	III	08.30 A.M - 11.30 A.M
	IV	12.00 P.M - 03.00 P.M

**Nalanda Open University**  
**Annual Examination - 2013**  
**B.Sc. (Honours), Part-II**  
**Zoology Subsidiary**  
**Paper-II**

**Time: 3.00 Hrs.**

**Full Marks: 80**

Answer ***five*** questions. All questions are of equal value.

1. Give an account of retrogressive metamorphosis in Herdmania.
2. Describe respiratory system of Scoliodon.
3. Give an account of flight adaptation in bird.
4. Describe distribution, characters and affinities of Prototheria.
5. Give a comparative account of aortic arches of bird and mammal.
6. Describe the development of chick upto three germinal layers.
7. Give an account of structure and classification of Carbohydrates.
8. Describe development of placenta in mammal.
9. Give an account of structure and functions of thyroid gland.
10. Write short notes on any two of the following :
  - (a) Oral hood
  - (b) Placoid scale
  - (c) Gigantism
  - (d) Air sac.



**Nalanda Open University**  
**Annual Examination - 2013**  
**B.Sc. Zoology (Honours), Part-III**  
**Paper-V**

**Time: 3.00 Hrs.**

**Full Marks: 80**

**Answer any *Five* Questions. Question No.1 is compulsory. All Questions are of equal value.**

1. Multiple choice questions (Each question carries **TWO** Marks)
  - (i) Keratin Protein is found in:  
(a) Blood            (b) Brain            (c) Hair            (d) Bone
  - (ii) Vitamin E is stored in:  
(a) Mitochondria (b) Microsomes            (c) Both (a) and (b)            (d) None of these
  - (iii) Krebs Cycle begins with:  
(a) Glucose            (b) Oxaloacetic            (c) Pyruvic Acid            (d) Citric acid
  - (iv) The heart of man is:  
(a) Digenic            (b) Cardiogenic            (c) Myogenic            (d) Neurogenic
  - (v) Amino acids are insoluble in:  
(a) Acetic acid            (b) Chloroform            (c) Ethanol            (d) Benzene
  - (vi) Excretory organs have evolved to excrete mainly.  
(a) Water            (b) Urea and Water            (c) Salts            (d) Nitrogenous Wastes
  - (vii) E M P is another name of:  
(a) Krebs cycle            (b) E.T.S            (c) Glycolysis            (d) Oxysomes
  - (viii) Blood capillaries can easily rupture due to the deficiency of:  
(a) Vit-A            (b) Vit-C            (c) Vit-D            (d) Vit-K.
2. Give an account of structure and classification of Protein.
3. Describe Krebs Cycle and its energetics.
4. Give an account  $\beta$ -oxydation of fatty acid.
5. Give an account of mechanism of Urine formation in mammal.
6. Describe the mechanism of muscle contraction.
7. Give an account of structure and classification of amino acids.
8. Give an account of Cardiac Cycle.
9. Describe the process of digestion of Protein in mammal.
10. Write notes on any **two** of the following:
  - (a) ECG
  - (b) Bile
  - (c) S A node
  - (d) Nephron



**Nalanda Open University**  
**Annual Examination - 2013**  
**B.Sc. Zoology (Honours), Part-III**  
**Paper-VI**

**Time: 3.00 Hrs.**

**Full Marks: 80**

**Answer any *Five* Questions. Question No.1 is compulsory. All Questions are of equal value.**

1. Multiple choice questions (Each question carries **TWO** Marks)
  - (i) Enzymes are synthesized in the cell by:  
(a) Mitochondria (b) Lysosome (c) Golgi bodies (d) Ribosome
  - (ii) Insulin is a  
(a) Carbohydrates (b) Fat (c) Protein (d) None
  - (iii) Mutation which is fatal for the organism is  
(a) Gene mutation (b) Point mutation (c) Lethal mutation (d) Reserve mutation
  - (iv) The queen honey bee is:  
(a) Diploid (b) Tetraploid (c) Haploid (d) Triploid
  - (v) Klinefelter's syndrome is due to  
(a) Monosomy (b) Nullisomy (c) Triploidy (d) Trisomy
  - (vi) Lysosome was discovered by:  
(a) Palade (b) Robertson (c) de Duve (d) d Vries
  - (vii) In DNA replication the helix is unwound by which enzyme?  
(a) Topoisomerase (b) Primase (c) DNA polymerase (d) Helicase
  - (viii) Variation in the morphology of individual chromosome is:  
(a) Haploidy (b) Polyploidy (c) Inversion (d) Chromosomal aberration
2. Give an account of structure and function Golgi body.
3. Give an account of transport of substances across cell membrane.
4. Describe structure and functions of cytoskeleton elements.
5. Give an account of Linkage and crossing over.
6. Describe structure and function of DNA.
7. Give an account of chromosomal aberration.
8. Write an essay on Parthenogenesis.
9. Describe Mendal's laws.
10. Write notes on any **two** of the following:
  - (a) Genotype and Phenotype
  - (b) Kappa particles
  - (c) Gene mutation
  - (d) Down's syndrome.





**Nalanda Open University**  
**Annual Examination - 2013**  
**B.Sc. Zoology (Honours), Part-III**  
**Paper-VII**

**Time: 3.00 Hrs.**

**Full Marks: 80**

**Answer any *Five* Questions. Question No.1 is compulsory. All Questions are of equal value.**

1. Multiple choice questions (Each question carries ***two*** Marks)
  - (i) Sources of variation was explained by:  
(a) Darwin                      (b) Lamark                      (c) Hugo de vries                      (d) Weismann
  - (ii) The "Use and Disuse" principle was proposed by  
(a) Hugo de vries      (b) Lamark                      (c) Weismann                      (d) Darwin
  - (iii) Egg is fertilized but zygote is unviable due to  
(a) Gametic mortality      (b) Zygote mortality      (c) Hybrid inviability      (d) Hybrid sterility
  - (iv) Which was the smallest horse?  
(a) Hyracotherium      (b) Epihippus                      (c) Meshippus                      (d) Miohippus
  - (v) Human evolution originated in:  
(a) Africa                      (b) Java                      (c) France                      (d) China
  - (vi) The era in which man diversified was:  
(a) Coenozoic                      (b) Mesozoic                      (c) Palaeozoic                      (d) All of these
  - (vii) Over production of individuals will lead to:  
(a) Survival                      (b) Struggle                      (c) Increase in fitness      (d) Mutation
  - (viii) The book "Origin of Species" was published in:  
(a) 1809                      (b) 1858                      (c) 1859                      (d) 1956
2. Write an essay on evolution of horse.
3. Give an account of variation.
4. Give an account of Darwin's concept of organic evolution.
5. Describe the zoogeographical realms of the World and their boundaries.
6. Describe the characteristics and fauna of oriental region.
7. Give an account of theories and principles pertaining to animals distribution.
8. Write an essay on Ethiopian region.
9. Describe the various pre-mating and post-mating isolation mechanism.
10. Write notes on any ***two*** of the following:
  - (a) Galapagos Island                      (b) "Use and disuse"
  - (c) Neo-Darwinism                      (d) Peking man

**Nalanda Open University**  
**Annual Examination - 2013**  
**B.Sc. Zoology (Honours), Part-III**  
**Paper-VIII**

**Time: 3.00 Hrs.**

**Full Marks: 80**

**Answer any *Five* Questions. All Questions are of equal value.**

1. Describe the structure and functions of hormones secreted by pituitary gland.
2. Describe the structure and functions of islets of Langerhans.
3. Describe the fauna of mesozoic era.
4. Give an account of types of fossils and their age determination methods.
5. Describe the chi-square test.
6. Give an account of standard deviation with suitable example.
7. Describe the structure of adrenal gland and functions of hormones secreted by the three zones of cortex.
8. What is meant by biostatistics? Discuss the scope of biostatistics.
9. Describe merits and demerits of arithmetic mean.
10. Write notes on any ***two*** of the following:
  - (a) Goiter
  - (b) Gigantism
  - (c) Lottery method sampling
  - (d) Standard error



**Examination Programme-2013**  
**B.Sc (Part-III)**

**Botany, Chemistry, Mathematics, Physics, तथा Zoology Honours के सभी विद्यार्थियों के लिए**

Date	Papers	Time	Examination Centre
30/4/2013	Honours Paper-V	3.30 to 6.30 p.m	Nalanda Open University, Patna
02/5/2013	Honours Paper-VI	3.30 to 6.30 p.m	Nalanda Open University, Patna
04/5/2013	Honours Paper-VII	3.30 to 6.30 p.m	Nalanda Open University, Patna
06/5/2013	Honours Paper-VIII	3.30 to 6.30 p.m	Nalanda Open University, Patna
08/5/2013	Paper -XV (Gen.Studies )	3.30 to 6.30 p.m	Nalanda Open University, Patna