

Nalanda Open University

Annual Examination - 2014

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

Paper-I

Time: 3.00 Hrs.

Full Marks: 80

Answer any Five questions. Question No. 1 is Compulsory. All questions are of equal value

- Multiple choice questions. (Each question carries **Two** marks).
 - Movement of food vacuoles in Paramecium along a definite path is called :
(a) Endomixis (b) Cyclosis (c) Exomixis (d) None of these
 - Infective stage of mosquito is :
(a) Trophozoite (b) Ookinite (c) Schizont (d) Sporozoite
 - Which one is called sea pen?
(a) Velella (b) Adamsia (c) Pennatula (d) Porpita
 - The intermediate host of filarial worm is :
(a) Sand fly (b) Tsetse fly
(c) Female Culex mosquito (d) House fly
 - Gravid proglottids contain :
(a) Sperms (b) Mature ova (c) Immature Ova (d) Onchosperere
 - Trachea are respiratory organs of :
(a) Prawn (b) Cockroach (c) Peripatus (d) Both (b) and (c)
 - Locomotory organs of star fish is :
(a) Pseudopodia (b) Polian vesicle (c) Podia (d) Cilia
 - Aphrodite is commonly called :
(a) Paddle worm (b) Scale worm (c) Sea mouse (d) Lug worm
- Give an account of life cycle of a protozoa which causes Kala-azar.
- Give an account of Canal system of Sponges.
- Describe life cycle of Sacculina.
- Give an account of water vascular system of star fish.
- Describe respiratory system of Prawn.
- Describe respiratory organs and mechanism of respiration in Pila.
- Explain alternation of generation with reference to the life cycle of Obelia.
- Describe life cycle of Taenia solium.
- Write short notes on any **Two** of the following :
 - Polymorphism (b) Bipinnaria larva
 - Micorfilaria (d) Redia larva



Examination Programme, 2014

B.Sc (Part – I) All Honours Subjects

Except Home Science and Geography Honours

Date	Papers.	Time	Examination Centre
12/6/2014	(Hons) P-I	8 to 11 am	Nalanda Open University, Patna
14/6/2014	(Hons) P-II	8 to 11 am	Nalanda Open University, Patna
16/6/2014	Rastrabhsha-100 or Hindi +Urdu 100	8 to 11 am	Nalanda Open University, Patna
18/6/2014	Botany (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
19/6/2014	Math (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
20/6/2014	Geography (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
21/6/2014	Chemistry (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
23/6/2014	Physics (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
24/6/2014	Home Scince (Sub)-P I	8 to 11 am	Nalanda Open University, Patna
25/6/2014	Zoology (Sub) P-I	8 to 11 am	Nalanda Open University, Patna

Nalanda Open University

Annual Examination - 2014

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 a pond ecosystem.
2. Give an account of nitrogen cycle.
3. Describe parental care shown by fishes.
4. Describe causes of water pollution and their control.
5. Write an essay on wild life conservation.
6. Give an account of life cycle of any two pests of sugarcane.
7. Give an account of sericulture in India.
8. How you can show that honeybee is a social insect?
9. Give a brief account of different components of biospheres.
10. Write short notes on any **Two** of the following :
 - (a) Food Chain
 - (b) Carbon Credits
 - (c) Ozon Layer
 - (d) Biological Clock



Practical Programme, 2014

Programme of B.Sc. Part-I, Zoology (Hons.),

Practical Counselling Class and Examination, 2014

Venue:- Biology Lab,, 4th Floor, Biscomaun Bhawan, Patna

(A) Practical Counselling Class

Date	Paper	Time	Batch	Enrollment No.
26.06.2014	I	2:00 PM to 6:00 PM	Z1	All Old Students & 130510004 to 130510037
27.06.2014	I	2:00 PM to 6:00 PM	Z2	130510038 to 130510083
30.06.2014	II	10.00 AM to 2.00 PM	Z1	All Old Students & 130510004 to 130510037
30.06.2014	II	2:00 PM to 6:00 PM	Z2	130510038 to 130510083

(B) Practical Examination

Date	Time		Batch	Enrollment No.
	11.00 AM to 2.00 PM	2:30 PM to 5:30 PM		
01.07.2014	Paper-I	Paper-II	Z1	All Old Students & 130510004 to 130510037
02.07.2014	Paper-I	Paper-II	Z2	130510038 to 130510083

Nalanda Open University
Annual Examination - 2014
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 structure and locomotion of Paramecium.
2. Give an account of Canal system of Sycon.
3. Describe Water Vascular system of Starfish.
4. Give an account of Parthenogenesis.
5. Describe structure of DNA.
6. Write an essay on Variation and its role played in evolution.
7. Describe respiratory system of Prawn.
8. Describe life cycle of Taenia Solium.
9. Describe respiratory organs and mechanism of respiration in Pila.
10. Write short notes on any **Two** of the following :
(a) Scolex (b) Golgi Complex (c) Redia Larva (d) Linkage



*Programme of B.Sc. Part-I, Zoology (Subsidiary),
Practical Counselling Class and Examination, 2014
Venue:- Biology Lab, 4th Floor, Biscomaun Bhawan, Patna*

*Date & Time for Practical Counselling Class and
Practical Exam for All Honours Students*

<i>for Practical Counselling</i>		<i>for Practical Examination</i>	
<i>Date</i>	<i>Time</i>	<i>Date</i>	<i>Time</i>
05.07.2014 & 07.07.2014	9.00 AM to 11.00 AM	08.07.2014	8.00 AM to 11.00 AM

Nalanda Open University

Annual Examination - 2014

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

Paper-III

Time: 3.00 Hrs.

Full Marks: 80

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

1. Describe external features and affinities of Petromyzon.
2. Describe origin of Amphibia.
3. What are the adaptive features for the smooth flight of bird.
4. Describe the urinogenital system of scoliodon (female only).
5. Write an essay on adaptive radiation in mammals.
6. Give an account of distribution, characters and affinities of Metatheria.
7. Classify Reptilia upto orders with characters and examples.
8. Give an account of systematic position and external features of Herdmania.
9. Describe digestive system of Pigeon.
10. Write short notes on any **Two** of the following:-
(a) Neoteny (b) Airsacs (c) Dolphin (d) Kangaroo



Examination Programme, 2014

(Bachelor Of Science (Part-II))

All Subjects Except B.Sc Geography & Home Science (Honours)

Date	Paper	Time	Name of Examination Centre
21/5/2014	HONOURS PAPER – III	3.30 to 6.30 pm	Nalanda Open University, Patna
23/5/2014	HONOURS PAPER – IV	3.30 to 6.30 pm	Nalanda Open University, Patna
27/5/2014	(SUB.) (Mathematics - II)	8.00 to 11.00 am	Nalanda Open University, Patna
28/5/2014	(SUB.) (Home Science- II)	12.00 to 3.00 pm	Nalanda Open University, Patna
29/5/2014	(SUB.) (Chemistry - II)	8.00 to 11.00 am	Nalanda Open University, Patna
30/5/2014	(SUB.) (Zoology - II)	8.00 to 11.00 am	Nalanda Open University, Patna
31/5/2014	Hindi 100 orUr 50+Hn50	3.30 to 6.30 pm	Nalanda Open University, Patna
02/6/2014	(SUB.) (Botany - II)	8.00 to 11.00 am	Nalanda Open University, Patna
02/6/2014	(SUB.) (Physics- II)	8.00 to 11.00 am	Nalanda Open University, Patna
04/6/2014	(SUB.) (Geography -II)	8.00 to 11.00 am	Nalanda Open University, Patna

Nalanda Open University, Patna

Programme of B.Sc. Part-II Zoology (Hons.),

Practical Counselling Class and Examination, 2014

Venue:- Biology Lab,, 4th Floor, Biscomaun Bhawan, Patna

(A) Practical Counselling Class

Date	Paper	Time
07.06.2014 to 09.06.2014	III & IV	2:00 PM to 6:00 PM

(B) Practical Examination

Date	Time	Time
	10.00 AM to 1.00 PM	1:30 PM to 4:30 PM
11.06.2014	Paper-III	Paper-IV

Nalanda Open University

Annual Examination - 2014

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

Paper-IV

Time: 3.00 Hrs.

Full Marks: 80

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

1. Describe derivatives of integument of mammal.
2. Give a comparative account of aortic arches of reptile and mammal.
3. Give an account of development of mammalian placenta.
4. Describe development of eyes in chick embryo.
5. Give an account development of chick embryo upto three-germinal layers.
6. Compare brain of frog with that the brain of bird.
7. Give an account different types of vertebrates eggs.
8. Describe the structure of Kidney of bird and compare with the Kidney of reptile.
9. Give an account of structure of skin of frog and compare with that of skin of mammal.
10. Write short notes on any **Two** of the following:-
(a) Morula (b) Sebaceous gland (c) Megalecithal (d) Double Circulation



Programme, 2014

(Bachelor Of Science (Part-II))

All Subjects Except B.Sc Geography & Home Science (Honours)

Date	Paper	Time	Name of Examination Centre
21/5/2014	HONOURS PAPER – III	3.30 to 6.30 pm	Nalanda Open University, Patna
23/5/2014	HONOURS PAPER – IV	3.30 to 6.30 pm	Nalanda Open University, Patna
27/5/2014	(SUB.) (Mathematics - II)	8.00 to 11.00 am	Nalanda Open University, Patna
28/5/2014	(SUB.) (Home Science- II)	12.00 to 3.00 pm	Nalanda Open University, Patna
29/5/2014	(SUB.) (Chemistry - II)	8.00 to 11.00 am	Nalanda Open University, Patna
30/5/2014	(SUB.) (Zoology - II)	8.00 to 11.00 am	Nalanda Open University, Patna
31/5/2014	Hindi 100 orUr 50+Hn50	3.30 to 6.30 pm	Nalanda Open University, Patna
02/6/2014	(SUB.) (Botany - II)	8.00 to 11.00 am	Nalanda Open University, Patna
02/6/2014	(SUB.) (Physics- II)	8.00 to 11.00 am	Nalanda Open University, Patna
04/6/2014	(SUB.) (Geography -II)	8.00 to 11.00 am	Nalanda Open University, Patna

*Programme of B.Sc. Part-II Zoology (Hons.),
Practical Counselling Class and Examination, 2014
Venue:- Biology Lab,, 4th Floor, Biscomaun Bhawan, Patna*

(A) Practical Counselling Class

Date	Paper	Time
07.06.2014 to 09.06.2014	III & IV	2:00 PM to 6:00 PM

(B) Practical Examination

Date	Time	Time
11.06.2014	10.00 AM to 1.00 PM	1:30 PM to 4:30 PM
	Paper-III	Paper-IV

Nalanda Open University

Annual Examination - 2014

B.Sc. Zoology (Subsidiary), Part-II

Paper-II (Chordata Embryology, Biochemistry, Physiology, Endocrinology)

Time: 3.00 Hrs.

Full Marks: 80

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

1. Describe external features of Herdmania.
2. Give an account of urinogenital system of scoliodon (female only).
3. Describe the structure and classification of Protein.
4. Give an account of migration in birds.
5. Describe the structure and functions of Pituitary gland.
6. Compare the heart of amphibia with that of heart of mammal.
7. Describe the development of chick upto three germinal layers.
8. Describe the respiratory system of Pigeon.
9. Classify mammalia upto orders giving characters and examples.
10. Write short notes on any **Two** of the following:-
 - (a) Echidina
 - (b) Gagstrulation
 - (c) Ctenoid scale
 - (d) Goiter



*Programme of B.Sc. Part-II, Zoology (Subsidiary)),
Practical Counselling Class and Examination, 2014
Venue:- Biology Lab, 4th Floor, Biscomaun Bhawan, Patna*

(A) Practical Counselling Class

<i>Date</i>	<i>Time</i>	<i>Subject</i>	<i>Roll No.</i>
12.06.2014	2.00 AM to 6.00 PM	Zoology (Subsidiary)	All Students

(B) Practical Examination

<i>Date</i>	<i>Time</i>	<i>Subject</i>	<i>Roll No.</i>
14.06.2014	1.00 PM to 4.00 PM	Zoology (Subsidiary)	All Students

Nalanda Open University

Annual Examination - 2014

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

Paper-V

Time: 3.00 Hrs.

Full Marks: 80

Answer any five questions. Questions No. 1 is compulsory. All questions carry equal marks.

1. Multiple choice questions. (Each question carries Two marks)
 - (i) The protein present in the matrix of the connective tissue is :
(a) Collagen (b) Albumin (c) Protamines (d) Globulin
 - (ii) Vitamin D is absorbed in :
(a) Small intestine (b) Large intestine (c) Stomach (d) Pancreas
 - (iii) Which of these amino acids has two NH₂-groups?
(a) Lysine (b) Serine (c) Glycine (d) Valine
 - (iv) Pacemaker of the heart is :
(a) SA node (b) IA node (c) AV node (d) AV septum
 - (v) Ultrafiltration occurs in :
(a) Glomerules (b) Renal tubules
(c) Urinary bladder (d) Blood capillaries
 - (vi) Essential amino acids must come from :
(a) Food (b) Lipid (c) Rice (d) Carbohydrates
 - (vii) Non-reducing sugar is :
(a) Maltose (b) Lactose (c) Glucose (d) Sucrose
 - (viii) Excretory organs have evolved to excrete mainly :
(a) Water (b) Urea and water
(c) Salts (d) Nitrogenous wastes
2. Describe structure and classification of Carbohydrates.
3. Give an account of factors responsible for blood clotting.
4. Give an account of Glycolysis.
5. Give an account of different types of Vitamins.
6. Describe different types of cardiac muscles.
7. Describe physiology of respiration in mammal.
8. What are amino acids? Classify them.
9. Give an account of structure and function of Nephron.
10. Write short notes on *any Two* of the following :
 - (a) Bohr's effect
 - (b) Loop of Henle
 - (c) Pancrease
 - (d) Cardiac output



Examination Programme-2014

B.Sc (Part-III)

Botany, Chemistry, Mathematics, Physics and Zoology (Honours)

Date	3.30 to 6.30 P.M.	Examination Centre
20/5/2014	Honours Paper-V	Nalanda Open University, Patna
22/5/2014	Honours Paper-VI	Nalanda Open University, Patna
24/5/2014	Honours Paper-VII	Nalanda Open University, Patna
26/5/2014	Honours Paper-VIII	Nalanda Open University, Patna
28/5/2014	Paper -XV (General Studies)	Nalanda Open University, Patna

For Practical Exam Programme Please See Back Page

Nalanda Open University

Annual Examination - 2014

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

Paper-VI

Time: 3.00 Hrs.

Full Marks: 80

Answer any five questions. Questions No. 1 is compulsory. All questions carry equal marks.

1. Multiple choice questions. (Each question carries Two marks)
 - (i) Down's syndrome in human being is due to :
(a) Monosomy (b) Triploidy (c) Trisomy (d) Nullisomy
 - (ii) Male honey bee is :
(a) Triploid (b) Haploid (c) Tetraploid (d) Diploid
 - (iii) Which is trisomic condition?
(a) $2n - 1$ (b) $2n + 1$ (c) $2n + 2$ (d) $2n + 3$
 - (iv) Ribosome was discovered by :
(a) Bovari (b) Porter (c) Kollinker (d) Palade
 - (v) The site of cholesterol synthesis is :
(a) Nucleus (b) Endoplasmic reticulum
(c) Golgi body (d) Mitochondria
 - (vi) Transcription is most similar to :
(a) Chemiosmosis (b) DNA replication
(c) Translation (d) Facilitated transport
 - (vii) When many sperms enter in the egg, the condition is termed as :
(a) Physiological polyspermy (b) Pathological polyspermy
(c) Polyandry (d) Polygamy
 - (viii) Mutation, which alter the chemical structure of genes at molecular level is known as :
(a) Chromosomal mutation (b) Point mutation
(c) Lethal mutation (d) Reverse mutation
2. Give an account of DNA replication.
3. Describe the role played by endoplasmic reticulum in cell secretion.
4. Describe different types of chromosomes and their functions.
5. Write an essay on mutation.
6. Give an account of Fertilization.
7. Give an account of structure of RNA and its functions.
8. Describe structure and function of mitochondria.
9. Give an account of active transport.
10. Write short notes on any *Two* of the following :
 - (a) Lethal mutation
 - (b) Passive transport
 - (c) Genotypes
 - (d) Golgi body



Examination Programme-2014

B.Sc (Part-III)

Botany, Chemistry, Mathematics, Physics and Zoology (Honours)

Date	3.30 to 6.30 P.M.	Examination Centre
20/5/2014	Honours Paper-V	Nalanda Open University, Patna
22/5/2014	Honours Paper-VI	Nalanda Open University, Patna
24/5/2014	Honours Paper-VII	Nalanda Open University, Patna
26/5/2014	Honours Paper-VIII	Nalanda Open University, Patna
28/5/2014	Paper -XV (General Studies)	Nalanda Open University, Patna

Nalanda Open University
Annual Examination - 2014
B.Sc. Zoology (Honours), Part-III
Paper-VII

Time: 3.00 Hrs.

Full Marks: 80

Answer any five questions. Questions No. 1 is compulsory. All questions carry equal marks.

1. Multiple choice questions. (Each question carries Two marks)
 - (i) Most primitive fossil of horse is :
(a) Equus (b) Merichippus (c) Mesohippus (d) Eohippus
 - (ii) The modern horse appeared in :
(a) Eocene (b) Oligocene (c) Pliocene (d) Mesocene
 - (iii) "Struggle for existence" is related with :
(a) Lamarckism (b) Mendelism (c) Darwinism (d) Wallace
 - (iv) Role of mutation in evolution is :
(a) Reproductive isolation (b) Genetic variation
(c) Genetic drift (d) None of these
 - (v) Ramapithecus is a fossil recovered from :
(a) Shivalik hills of India (b) Desert of Africa
(c) Germany (d) Java
 - (vi) India falls under :
(a) Ethiopian region (b) Oriental region
(c) Australian region (d) Palearctic region
 - (vii) The era in which man diversified is :
(a) Coenozoic (b) Mesozoic
(c) Palaeozoic (d) All
 - (viii) Presence of six digit on hand is the result of :
(a) Meristic variation (b) Somatic variation
(c) Substantive variation (d) None of these
2. Give an account of evolution of man.
3. Describe Australian region and its fauna.
4. Write an essay on organic evolution.
5. Write about various kinds and causes of variation.
6. Give the general peculiarities of oceanic islands.
7. Describe different isolating mechanism and their role in evolution.
8. Write an essay on fossil history of horse.
9. Write about Neo-Darwinism.
10. Write short notes on any **Two** of the following :
 - (a) Hybrid sterility (b) Mesozoic era
 - (c) Gorilla (d) Zygote mortality



Examination Programme-2014

B.Sc (Part-III)

Botany, Chemistry, Mathematics, Physics and Zoology (Honours)

Date	3.30 to 6.30 P.M.	Examination Centre
20/5/2014	Honours Paper-V	Nalanda Open University, Patna
22/5/2014	Honours Paper-VI	Nalanda Open University, Patna
24/5/2014	Honours Paper-VII	Nalanda Open University, Patna
26/5/2014	Honours Paper-VIII	Nalanda Open University, Patna
28/5/2014	Paper -XV (General Studies)	Nalanda Open University, Patna

For Practical Exam Programme Please See Back Page

Nalanda Open University
Annual Examination - 2014
B.Sc. Zoology (Honours), Part-III
Paper-VIII

Time: 3.00 Hrs.

Full Marks: 80

Answer any five questions. All questions carry equal marks.

1. Write an illustrated account of thyroid gland.
2. Give an account of hormone secreted by adeno-hypo-physis.
3. Give an account of endocrine functions of Pancreas.
4. Describe the characteristics and fauna of Cenozoic era
5. Give an account of methods of fossil formation.
6. Describe the different methods of sampling.
7. Describe Mean, Mode and Media with example.
8. Give an account of student-t-test.
9. Describe the role of biostatistics in biology.
10. Write short notes on any **Two** of the following :-
 - (a) Adrenal Medulla
 - (b) Concept of Census
 - (c) Standard Error
 - (d) Radio-Carbon Method



Examination Programme-2014
B.Sc (Part-III)

Botany, Chemistry, Mathematics, Physics and Zoology (Honours)

Date	3.30 to 6.30 P.M.	Examination Centre
20/5/2014	Honours Paper-V	Nalanda Open University, Patna
22/5/2014	Honours Paper-VI	Nalanda Open University, Patna
24/5/2014	Honours Paper-VII	Nalanda Open University, Patna
26/5/2014	Honours Paper-VIII	Nalanda Open University, Patna
28/5/2014	Paper -XV (General Studies)	Nalanda Open University, Patna

*Programme of B.Sc. Part-III Zoology (Hons.),
 Practical Counselling Class and Examination, 2014
 Venue:- Biology Lab,, 4th Floor, Biscomaun Bhawan, Patna*

(A) Practical Counselling Class

Date	Paper	Time
29.05.2014 to 02.06.2014	V to VIII	2:00 PM to 6:00 PM

(B) Practical Examination

Date	Time 10.00 AM to 1.00 PM	Time 1:30 PM to 4:30 PM
05.06.2014	Paper-V	Paper-VI
06.06.2014	Paper-VII	Paper-VIII