

Nalanda Open University

Annual Examination - 2015

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) Cytokinesis (b) Metagenesis (c) Cyclosis (d) Endomixis
 - Choanocytes are also known as
(a) Muscle cells (b) Collar cell (c) Nerve cell (d) Blood cell
 - Which one is a jelly fish?
(a) Aurelia (b) Obelia (c) Metridium (d) Hormiphora
 - Fasciola hepatica* is found in
(a) The intestine of man (b) The intestine of sheep
(c) Liver of sheep (d) Pancreas of sheep
 - Microfilaria is the larva of
(a) Tape worm (b) Pin worm (c) Round worm (d) Filarial worm
 - The body cavity of Leech is filled with which of the following?
(a) Coelomic fluid (b) Connective tissues
(c) Parenchyma (d) Botryoidal tissues
 - Which of the following is the excretory organ of Prawn?
(a) Coxal gland (b) Green gland
(c) Hepatopancreas (d) Malpighian tubules
 - Excretory organ of *Pila* is
(a) Renal organ (b) Keber's organ (c) Kidney (d) Nephridia
- Describe the structure and life cycle of *Entamoeba histolytica*.
- Describe structure and life history of *Fasciola hepatica*.
- Give an account of life cycle of *Wuchereria bancrofti*.
- Describe different types of mouth parts of insects.
- Give an account of larval forms of Echinodermata.
- Describe structure and affinities of Balanoglossus.
- Give an account of excretory organs of Nereis and Leech.
- Describe the respiratory system of Unio.
- Write short notes on any **Two** of the following:
 - Glochidium larva (b) Hepatopancreas
 - Bladder worm (d) Medusa



Examination Programme, 2015

B.Sc (Part – I) All Honours Subjects

(Except Home Science and Geography Honours)

Date	Papers.	Time	Examination Centre
23/3/2015	(Hons) P-I	3.30 to 6.30 pm	Nalanda Open University, Patna
25/3/2015	(Hons) P-II	3.30 to 6.30 pm	Nalanda Open University, Patna
28/3/2015	Rastrabhsha-100 or Hindi +Urdu 100-I	3.30 to 6.30 pm	Nalanda Open University, Patna
30/3/2015	Botany (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
31/3/2015	Math (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
01/4/2015	Geography (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
02/4/2015	Chemistry (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
03/4/2015	Home Science (Sub)-P I	8 to 11 am	Nalanda Open University, Patna
04/4/2015	Zoology (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
06/4/2015	Physics (Sub) P-I	8 to 11 am	Nalanda Open University, Patna

Nalanda Open University
Annual Examination - 2015
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. Give an account of Carbon cycle.
2. Describe the parental care in Amphibia.
3. Give an account of migratory behaviour in birds.
4. Describe the process of pisciculture in a fresh water system.
5. Give three zoological names of paddy pest and mention life cycle of any two of them.
6. What is food chain? Describe different food chains with example.
7. What do you mean by endangered species? Describe various measures for wild life conservation.
8. Give an account of characteristics of Lithospheres.
9. Give an account of air pollution, its causes and control.
10. Write notes on *any Two* of the following:

(a) Acid rain	(b) Bee dance
(c) Learned behaviour	(d) Carbon credits



Examination Programme, 2015

B.Sc (Part – I) All Honours Subjects

(Except Home Science and Geography Honours)

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04/4/2015	Zoology (Sub) P-I	8 to 11 am	Nalanda Open University, Patna
06/4/2015	Physics (Sub) P-I	8 to 11 am	Nalanda Open University, Patna

Practical Counselling and Examination Programme of B.Sc. Part-I Zoology (Hons.)

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

Practical Counselling

Date	Papers	Time	Batches	Enrollment No.
07.04.2015	I	2.00 PM to 6.00 PM	Z1	All Old Students 140510001 to 140510033
08.04.2015	I	2.00 PM to 6.00 PM	Z2	140510034 to 140510097
10.04.2015	II	10.00 AM to 2.00 PM	Z1	All Old Students 140510001 to 140510033
11.04.2015	II	10.00 PM to 2.00 PM	Z2	140510034 to 140510097

Practical Examination

Date	Time		Batch	Enrollment No.
	11:00 AM to 2:00 PM	2:30 PM to 5:30 PM		
13.04.2015	Paper-I	Paper-II	Z1	All Old Students 140510001 to 140510033
15.04.2015	Paper-I	Paper-II	Z2	140510034 to 140510097

Nalanda Open University
Annual Examination - 2015
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 process of conjugation in Paramecium.
2. Describe affinities of Balanoglossus.
3. Give an account of ultrastructure and functions of mitochondria.
4. Write an essay on Darwinism.
5. Give an account of Fertilization.
6. Describe life cycle of *Ascaris*.
7. Give an account of digestive system of *Pila*.
8. Write an essay on linkage.
9. Describe life cycle of *Fasciola hepatica*.
10. Write notes on *any two* of the following:
 - (a) Polymorphism
 - (b) Nephridia
 - (c) Book lung
 - (d) Medusa



Programme of B.Sc. Part-I Zoology (Subsidiary)
Practical Counselling and Examination 2015
Venue : 4th Floor, Biology Lab, Biscomaun Bhawan, Patna

Practical Counselling

<i>Date</i>	<i>Time</i>
10.04.2015	2.00 PM to 6.00 PM

Practical Examination

<i>Date</i>	<i>Time</i>
11.04.2015	2.00 PM to 5.00 PM

Nalanda Open University

Annual Examination - 2015

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 retrogressive metamorphosis in Herdmania.
2. Give an account of digestive system of Scoliodon.
3. Describe biting mechanism of a poisonous snake.
4. Give an account of respiratory system of Pigeon.
5. Describe the distribution, characters and affinities of Prototheria.
6. Describe structure and affinities of Branchiostoma.
7. Classify mammalia upto order giving characters and example.
8. Describe general characters and affinities of Dipnoi.
9. "Birds are glorified reptiles". Discuss.
10. Write short notes on any Two of the following ;
 - (a) Echidina
 - (b) Tadpole larva
 - (c) Ampulla of Lorenzini
 - (d) Wheel Organ



Examination Programme, 2015

(Bachelor Of Science (Part-II))

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

Date	Paper	Time	Name of Examination Centre
26/2/2015	HONOURS PAPER – III	8.00 to 11.00 am	Nalanda Open University, Patna
28/2/2015	HONOURS PAPER – IV	8.00 to 11.00 am	Nalanda Open University, Patna
03/3/2015	(SUB.) (Mathematics - II)	8.00 to 11.00 am	Nalanda Open University, Patna
04/3/2015	(SUB.) (Home Science- II)	8.00 to 11.00 am	Nalanda Open University, Patna
09/3/2015	(SUB.) (Chemistry - II)	8.00 to 11.00 am	Nalanda Open University, Patna
10/3/2015	(SUB.) (Zoology - II)	8.00 to 11.00 am	Nalanda Open University, Patna
11/3/2015	(SUB.) (Botany - II)	8.00 to 11.00 am	Nalanda Open University, Patna
12/3/2015	(SUB.) (Physics- II)	8.00 to 11.00 am	Nalanda Open University, Patna
13/3/2015	(SUB.) (Geography -II)	8.00 to 11.00 am	Nalanda Open University, Patna
14/3/2015	Hindi 100 orUr 50+Hn50	8.00 to 11.00 am	Nalanda Open University, Patna

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

Practical Class and Practical Examination, 2015

Venue : 4th Floor, Zoology Lab, Biscomaun Bhawan, Patna

(A) Practical Counselling Class

Date	Paper	Time
16.03.2015 to 17.03.2015	III & IV	2.00 PM to 6.00 PM

(B) Practical Examination Zoology (Hons)

Date	Time	Time
18.03.2015	11:00 AM to 2:00 PM	2:15 PM to 5:15 PM
	Paper-III	Paper-IV

Nalanda Open University

Annual Examination - 2015

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. Give a comparative account of integument of amphibia and mammal.
2. Compare the aortic arches of amphibia and bird.
3. How brain of a reptile differs with the brain of a mammal?
4. Describe different types of mammalian placenta and add a note on its functions.
5. Describe development of heart in chick embryo.
6. Give an account extra embryonic membrane in chick.
7. Describe the comparative account of kidney of bird and mammal.
8. Give an account of different types of cleavage pattern.
9. Give an account of structure of Hen's egg.
10. Write short notes on any Two of the following ;
 - (a) Blastula
 - (b) Sweat gland
 - (c) Medulla Oblongata
 - (d) Microlecithal



Examination Programme, 2015

(Bachelor Of Science (Part-II))

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

Date	Paper	Time	Name of Examination Centre
26/2/2015	HONOURS PAPER – III	8.00 to 11.00 am	Nalanda Open University, Patna
28/2/2015	HONOURS PAPER – IV	8.00 to 11.00 am	Nalanda Open University, Patna
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14/3/2015	Hindi 100 orUr 50+Hn50	8.00 to 11.00 am	Nalanda Open University, Patna

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

Practical Class and Practical Examination, 2015

Venue : 4th Floor, Zoology Lab, Biscomaun Bhawan, Patna

(A) Practical Counselling Class

Date	Paper	Time
16.03.2015 to 17.03.2015	III & IV	2.00 PM to 6.00 PM

(B) Practical Examination Zoology (Hons)

Date	Time	Time
18.03.2015	11:00 AM to 2:00 PM	2:15 PM to 5:15 PM
	Paper-III	Paper-IV

Nalanda Open University
Annual Examination - 2015
B.Sc. Zoology (Subsidiary), Part-II
Paper-II

Time: 3.00 Hrs.

Full Marks: 80

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

1. Describe retrogressive metamorphosis in Herdmania.
2. Describe the digestive system in Scoliodon.
3. Give an account of flight adaptation in bird.
4. Describe structure and classification of carbohydrates.
5. Give an account of different types of mammalian placenta and its functions.
6. Describe development of chick upto three germinal layers.
7. Give an account of structure and functions of thyroid gland.
8. Describe the physiology of respiration in mammal.
9. Give a comparative account of heart of amphibia and reptile.
10. Write short notes on any Two of the following;
 - (a) Placoid scale
 - (b) Air Sacs
 - (c) Cleavage
 - (d) Kangaroo



Examination Programme, 2015
(Bachelor Of Science (Part-II))

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

Date	Paper	Time	Name of Examination Centre
26/2/2015	HONOURS PAPER – III	8.00 to 11.00 am	Nalanda Open University, Patna
28/2/2015	HONOURS PAPER – IV	8.00 to 11.00 am	Nalanda Open University, Patna
03/3/2015	(SUB.) (Mathematics - II)	8.00 to 11.00 am	Nalanda Open University, Patna
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12/3/2015	(SUB.) (Physics- II)	8.00 to 11.00 am	Nalanda Open University, Patna
13/3/2015	(SUB.) (Geography -II)	8.00 to 11.00 am	Nalanda Open University, Patna
14/3/2015	Hindi 100 orUr 50+Hn50	8.00 to 11.00 am	Nalanda Open University, Patna

Nalanda Open University, Patna

Programme of B.Sc. Part-II Zoology (Subs)

Practical Class and Examination, 2015

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

(A) Practical Counselling Class

Date	Time	Paper
	02.00 P.M. to 06.00 PM	
23.03.2015	Zoology (Sub)	II

(B) Practical Examination

Date	Time	Paper
	02.00 P.M. to 500 PM	
24.03.2015	Zoology (Sub)	II

Nalanda Open University

Annual Examination - 2015

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) Vitamin K help in :
 - (a) Increasing acidity
 - (b) Albumen synthesis
 - (c) Glycogenesis
 - (d) Blood Coagulation
 - (ii) Heart of man is :
 - (a) Digenic
 - (b) Cardiogenic
 - (c) Myogenic
 - (d) Neurogenic
 - (iii) Pace maker influences :
 - (a) Contraction of pelvis
 - (b) Heart beat rate
 - (c) Blood flow in heart
 - (d) Contraction of heart muscles
 - (iv) Which of the blood group is Universal donor?
 - (a) A
 - (b) B
 - (c) AB
 - (d) O
 - (v) Keratin is found in :
 - (a) Blood
 - (b) Brain
 - (c) Hair
 - (d) Bone
 - (vi) Main function of Kidney is :
 - (a) Passive absorption
 - (b) Ultrafiltration
 - (c) Selective reabsorption
 - (d) Both (b) and (c)
 - (vii) Urea is transported by :
 - (a) Blood
 - (b) Erythrocytes
 - (c) Plasma
 - (d) Leucocytes
 - (viii) Krebs cycle occurs in :
 - (a) Cytoplasm
 - (b) Mitochondria
 - (c) Chloroplast
 - (d) Ribosome
2. Describe structure and classification of Protein.
3. Give an account of Krebs cycle and its energetics.
4. Describe the mechanism of muscle contraction.
5. Give an account of lung ventilation in mammal.
6. Describe the physiology of digestion of carbohydrate in mammal.
7. Describe the functions of different types of vitamins.
8. Give an account of mechanism of Urine formation.
9. Describe the different factors responsible for blood coagulation.
10. Write short notes on any *Two* of the following :
 - (a) ECG
 - (b) Nephron
 - (c) Nitrogenous Wastes
 - (d) AV node



For Examination & Practical Programme See Back Page

Nalanda Open University

Annual Examination - 2015

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.

- Multiple choice questions. (Each question carries Two marks)
 - Enzymes are synthesized in the cell by :
(a) Mitochondria (b) Lysosome (c) Golgi body (d) Ribosome
 - Male honey bee is :
(a) Diploid (b) Tetraploid (c) Haploid (d) Triploid
 - Ribosome was discovered by :
(a) Bovari (b) Porter (c) Kollinker (d) Palade
 - Klinefelter's syndrome is due to :
(a) Monosomy (b) Nullisomy (c) Triploidy (d) Trisomy
 - In DNA replication, the helix is unwound by which enzyme?
(a) Topoisomerase (b) Primase
(c) DNA polymerase (d) Helicase
 - Lysosome was discovered by :
(a) Palade (b) Robertson (c) de Duve (d) d Varies
 - Mutation, which is fatal to the organism is :
(a) Gene Mutation (b) Point Mutation
(c) Lethal Mutation (d) Reverse Mutation
 - Which of the following structure is vestigial organ in man?
(a) Spleen (b) Islet of Lanugerhans
(c) Coclia (d) Appendix
- Describe the structure and functions of DNA.
- Write an essay on Parthenogenesis.
- Describe Mendel's law of inheritance.
- Describe different types of Mutation.
- Give an account of chromosome aberration.
- Describe linkage and crossing over.
- Give an account of structure and functions of cytoskeleton elements.
- Describe the types of extra nuclear elements.
- Write short notes on *any Two* of the following :
 - Purine and Pyrimidines (b) Fertilization
 - Phenotype (d) Translation



Programme of B.Sc. Part-III Zoology (Hons.)

Annual Practical Counselling & Practical Examination - 2015

Venue : 4th Floor Biology Lab, Biscomaun Bhawan, Patna - 800 001

Practical Counselling

Date	Time	Paper
26.02.2015 to 01.03.2015	8.00 AM to 11.00 AM	V to VIII

Practical Examination

Date	Time	
	11:00 AM to 2:00 PM	2:30 PM to 5:30 PM
02.03.2015	Paper-V	Paper-VI
03.03.2015	Paper-VII	Paper-VIII

Nalanda Open University

Annual Examination - 2015

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) Sources of variation was explained by :
 - (a) Darwin
 - (b) Lamark
 - (c) Hugo de Vries
 - (d) Weismann
 - (ii) "Use and Disuse" was proposed by :
 - (a) Hugo de Vries
 - (b) Lamark
 - (c) Weismann
 - (d) Darwin
 - (iii) Human evolution originated in :
 - (a) Africa
 - (b) Java
 - (c) France
 - (d) China
 - (iv) Which is the closest relative of man today?
 - (a) Orangutan
 - (b) Gorilla
 - (c) Gibbon
 - (d) Sinanthropus
 - (v) Which was the smallest horse?
 - (a) Hyracotherium
 - (b) Epihippus
 - (c) Mesohippus
 - (d) Miohippus
 - (vi) Egg is fertilized but zygote is unviable due to :
 - (a) Gametic mortality
 - (b) Zygote mortality
 - (c) Hybrid inviability
 - (d) Hybrid sterility
 - (vii) The book "Origin of Species" was published in :
 - (a) 1809
 - (b) 1858
 - (c) 1859
 - (d) 1856
 - (viii) Over production of individuals will lead to :
 - (a) Survival
 - (b) Struggle
 - (c) Increase in fitness
 - (d) Mutation
2. Describe evolution of horse.
3. Give an account of Oriental region.
4. Describe Neo-Darwinism.
5. Give an account of theories of animal distribution.
6. Write role of isolation in evolution. Describe reproductive isolation.
7. Describe the Zoogeographical realms of World and their boundaries.
8. Describe characteristics and fauna of Ethiopian region.
9. Give an account of Oceanic islands.
10. Write short notes on *any Two* of the following :
 - (a) Peking Man
 - (b) Somatic variation
 - (c) Neo-Darwinism
 - (d) Galapagos Island



Programme of B.Sc. Part-III Zoology (Hons.)

Annual Practical Counselling & Practical Examination - 2015

Venue : 4th Floor Biology Lab, Biscomaun Bhawan, Patna - 800 001

Practical Counselling

Date	Time	Paper
26.02.2015 to 01.03.2015	8.00 AM to 11.00 AM	V to VIII

Practical Examination

Date	Time	
	11:00 AM to 2:00 PM	2:30 PM to 5:30 PM
02.03.2015	Paper-V	Paper-VI
03.03.2015	Paper-VII	Paper-VIII

Nalanda Open University
Annual Examination - 2015
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. Describe the structure of pituitary gland and functions of hormones secreted by it.
2. Describe the structure and functions of Islets of Langerhans.
3. Describe Chi-Square test.
4. Give an account of Standard deviation with example.
5. Describe the scope of biostatistics.
6. Give an account of histology and functions of hormones secreted by the cortex of adrenal gland.
7. Describe concept of census.
8. Write an essay on mesozoic era.
9. Describe merits and demerits of arithmetic mean.
10. Write short notes on any Two of the following :
 - (a) Goiter
 - (b) Gigantism
 - (c) Lottery method of sampling
 - (d) Standard error



Programme of B.Sc. Part-III Zoology (Hons.)
Annual Practical Counselling & Practical Examination - 2015
Venue : *4th Floor Biology Lab, Biscomaun Bhawan, Patna - 800 001*

Practical Counselling

<i>Date</i>	<i>Time</i>	<i>Paper</i>
26.02.2015 to 01.03.2015	8.00 AM to 11.00 AM	V to VIII

Practical Examination

<i>Date</i>	<i>Time</i>	
	<i>11:00 AM to 2:00 PM</i>	<i>2:30 PM to 5:30 PM</i>
02.03.2015	Paper-V	Paper-VI
03.03.2015	Paper-VII	Paper-VIII