

Nalanda Open University

Annual Examination - 2017

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:
 - Exomixis
 - Endomixis
 - Cylosis
 - None of the above
 - The intermediate host of filarial worm is:
 - Tsetse fly
 - House fly
 - Sand Fly
 - Female culex mosquito
 - Locomtory organs of starfish is:
 - Pseudopodia
 - Polian vesicle
 - Podia
 - Cilia
 - Which is called sea pan?
 - Velella
 - Adamsia
 - Pennantula
 - Porpita
 - Which one is a jelly fish?
 - Aurelia
 - Obelia
 - Metridium
 - Hormiphora
 - Which of the following is the excretory organ of prawn?
 - Coxal gland
 - Green gland
 - Malpighian tubules
 - Hepatopancreas
 - Choanocytes are also known as:
 - Muscle cells
 - Collar cells
 - Nerve cells
 - Blood cells
 - Miscrofilaria is the larva of:
 - Tape worm
 - Pin worm
 - Round worm
 - Filarial worm
- Describe the structure and life cycle of Entamoeba histolytica.
- Give an account of life cycle of Wuchereria bancrofti.
- Describe the mouth parts of Cockroach.
- Give an account of larval forms of Echinodermata.
- Describe the affinities of Balanoglossus.
- Describe the respiratory system of unio.
- Give an account of excretory organs of leech with suitable diagram.
- Give an account of canal system of sponges.
- Write short notes on any **Two** of the following:
 - Radial larva
 - Polymorphism
 - Glochidium larva
 - Trochophore larva



Examination Programme, 2017 (Revised)
B.Sc (Part – I) All Honours Subjects
Except Home Science, Geography & Statistics Honours
(गृह विज्ञान, भूगोल और सांख्यिकी ऑनर्स को छोड़कर)

Date	Papers.	Time	Examination Centre
20/3/2017	(Hons) P-I	3.30 to 6.30 pm	Nalanda Open University, Patna
22/3/2017	(Hons) P-II	3.30 to 6.30 pm	Nalanda Open University, Patna
24/3/2017	Rastrabshha-100 or Hindi+Urdu 100	3.30 to 6.30 pm	Nalanda Open University, Patna
27/3/2017	Math (Sub) P-I	8.00 to 11.00 am	Nalanda Open University, Patna
28/3/2017	Geography (Sub) P-I	8.00 to 11.00 am	Nalanda Open University, Patna
29/3/2017	Chemistry (Sub) P-I	8.00 to 11.00 am	Nalanda Open University, Patna
30/3/2017	Home Science (Sub)-P I	8.00 to 11.00 am	Nalanda Open University, Patna
31/3/2017	Zoology (Sub) P-I	8.00 to 11.00 am	Nalanda Open University, Patna
03/4/2017	Physics (Sub) P-I	8.00 to 11.00 am	Nalanda Open University, Patna
04/4/2017	Botany (Sub) P-I	8.00 to 11.00 am	Nalanda Open University, Patna
05/4/2017	Statistics (Sub) P-I	8.00 to 11.00 am	Nalanda Open University, Patna

Nalanda Open University
Annual Examination - 2017
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 Nitrogen cycle.
2. Describe Pond ecosystem.
3. Describe causes of water pollution and their control.
4. Describe parental care in amphibia.
5. Give an account of characteristics of Lithosphere.
6. Give the names of different paddy pests and mention life cycle of any two of them.
7. Give an account of migratory behaviour in Birds.
8. Describe biological clock and its significance.
9. Give an account of sericultre in India
10. Write notes on *any two* of the following:
 - (a) Acid rain
 - (b) Bee dance
 - (c) Food chain
 - (d) Ozon layer



Programme of B.Sc. Part-I Zoology (Hons.)
Practical Counselling and Examination 2017
Venue : 1st Floor, Biology Lab, Biscomaun Tower, Patna

(A) Practical Counselling Class

<i>Date</i>	<i>Papers</i>	<i>Time</i>	<i>Enrollment No.</i>
06.04.2017	I & II	09.00 AM to 01.00 PM	All Old Students 160510001 to 160510060
06.04.2017	I & II	01.00 PM to 05.00 PM	160510061 to 160510150
07.04.2017	I & II	09.00 AM to 01.00 PM	160510151 to 160510240
07.04.2017	I & II	01.00 PM to 05.00 PM	160510241 to 160510315

(B) Practical Examination

<i>Date</i>	<i>Papers</i>	<i>Time</i>	<i>Enrollment No.</i>
08.04.2017	I	09.00 AM to 11.00 AM	All Old Students 160510001 to 160510060
08.04.2017	II	11.00 AM to 01.00 PM	All Old Students 160510001 to 160510060
08.04.2017	I	01.00 PM to 03.00 PM	160510061 to 160510150
08.04.2017	II	03.00 PM to 05.00 PM	160510061 to 160510150
10.04.2017	I	09.00 AM to 11.00 AM	160510151 to 160510240
10.04.2017	II	11.00 AM to 01.00 PM	160510151 to 160510240
10.04.2017	I	01.00 PM to 03.00 PM	160510241 to 160510315
10.04.2017	II	03.00 PM to 05.00 PM	160510241 to 160510315

Nalanda Open University
Annual Examination - 2017
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 affinities of Balanoglossus.
2. Give an account of ultra structure and functions of mitochondria.
3. Describe life cycle of Ascaris.
4. Describe the life cycle of Fasciola hepatica.
5. Write an essay on Darwinism.
6. Describe the locomotory organ of starfish with the process of locomotion.
7. Describe the structure of DNA.
8. Describe the process of respiration in Prawn.
9. Describe the process of locomotion in Hydra.
10. Write short notes on *any two* of the following :-
 - (a) Polymorphism
 - (b) Medusa
 - (c) Linkage
 - (d) Book lung



Nalanda Open University
Annual Examination - 2017
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 the systematic position and external features of Herdmania.
2. Give an account of digestive system of scoliodon.
3. Describe biting mechanism of poisonous snake.
4. Describe the distribution, characters and affinities of Prototheria.
5. Give an account of respiratory system of Pigeon.
6. Classify Mammalia up to orders giving characters and examples.
7. Describe general characters and affinities of Dipnoi.
8. Describe the process of digestion in any mammal.
9. Give an account of origin of first land vertebrate.
10. Write short notes on any two of the following:
 - (a) Oral Hood
 - (b) Kangaroo
 - (c) Tadpole Larva
 - (d) Wheel organ



Nalanda Open University, Patna
Programme of B.Sc. Part-II Zoology (Hons.),
Practical Class and Practical Examination, 2017
 Venue : 1st Floor, Biology Lab, Biscomaun Tower, Patna

(A) Practical Counselling Class

<i>Date</i>	<i>Paper</i>	<i>Time</i>
16.03.2017	III & IV	11.15 AM to 05.45 PM

(B) Practical Examination

<i>Date</i>	<i>Paper</i>	<i>Time</i>
17.03.2017	III	11.15 AM to 02.15 PM
17.03.2017	IV	02.30 PM to 05.30 PM

Examination Programme, 2017

(Bachelor of Science (Part-II))

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

Date	Paper	Time	Name of Examination Centre
23/2/2017	HONOURS PAPER – III	8.00 to 11.00 am	Nalanda Open University, Patna
25/2/2017	HONOURS PAPER – IV	8.00 to 11.00 am	Nalanda Open University, Patna
27/2/2017	Hindi 100 or Ur 50+Hn 50	8.00 to 11.00 am	Nalanda Open University, Patna
01/3/2017	(SUB.) (Botany - II)	8.00 to 11.00 am	Nalanda Open University, Patna
02/3/2017	(SUB.) (Mathematics - II)	8.00 to 11.00 am	Nalanda Open University, Patna
04/3/2017	(SUB.) (Chemistry - II)	8.00 to 11.00 am	Nalanda Open University, Patna
06/3/2017	(SUB.) (Physics - II)	8.00 to 11.00 am	Nalanda Open University, Patna
07/3/2017	(SUB.) (Zoology - II)	8.00 to 11.00 am	Nalanda Open University, Patna
09/3/2017	(SUB.) (Geography - II)	8.00 to 11.00 am	Nalanda Open University, Patna
11/3/2017	(SUB.) (Home Science- II)	8.00 to 11.00 am	Nalanda Open University, Patna
16/3/2017	(SUB) Statistics-II)	8.00 to 11.00 am	Nalanda Open University, Patna

Nalanda Open University
Annual Examination - 2017
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. Compare the aortic arches of amphibia and birds.
2. How brains of a reptile differs with brain of mammal?
3. Give a comparative account of kidney of birds and mammal.
4. Give an account of structure of Hen's egg.
5. Describe different types of placenta in mammal and add a note on thier functions.
6. Give an account of different types of cleavage pattern.
7. Describe the integumental derivatives of mammals.
8. Give an account of gastrulation in frog.
9. Give an account of structure of skin of frog and compare it with that of skin of mammal.
10. Write short notes on any Two of the following ;
 - (a) Airsac
 - (b) Morula Stage
 - (c) Madulla oblongata
 - (d) Sweet gland



Nalanda Open University, Patna
Programme of B.Sc. Part-II Zoology (Hons.),
Practical Class and Practical Examination, 2017
 Venue : 1st Floor, Biology Lab, Biscomaun Tower, Patna

(A) Practical Counselling Class

<i>Date</i>	<i>Paper</i>	<i>Time</i>
16.03.2017	III & IV	11.15 AM to 05.45 PM

(B) Practical Examination

<i>Date</i>	<i>Paper</i>	<i>Time</i>
17.03.2017	III	11.15 AM to 02.15 PM
17.03.2017	IV	02.30 PM to 05.30 PM

Examination Programme, 2017

(Bachelor of Science (Part-II)

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

Date	Paper	Time	Name of Examination Centre
23/2/2017	HONOURS PAPER – III	8.00 to 11.00 am	Nalanda Open University, Patna
25/2/2017	HONOURS PAPER – IV	8.00 to 11.00 am	Nalanda Open University, Patna
27/2/2017	Hindi 100 or Ur 50+Hn 50	8.00 to 11.00 am	Nalanda Open University, Patna
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02/3/2017	(SUB.) (Mathematics - II)	8.00 to 11.00 am	Nalanda Open University, Patna
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09/3/2017	(SUB.) (Geography - II)	8.00 to 11.00 am	Nalanda Open University, Patna
11/3/2017	(SUB.) (Home Science- II)	8.00 to 11.00 am	Nalanda Open University, Patna
16/3/2017	(SUB) Statistics-II)	8.00 to 11.00 am	Nalanda Open University, Patna

Nalanda Open University
Annual Examination - 2017
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 the digestive system of Scoliodon.
2. Describe retrogressive metamorphosis in Herdmania.
3. "Birds are glorified Reptile", Discuss.
4. Give an account of flight adaptation in bird.
5. Describe structure and classification of Carbohydrate.
6. Describe the physiology of respiration in mammal.
7. Give an account of structure and function of Thyroid Gland.
8. Discuss a comparative account of heart of amphibia with that of reptile.
9. Give the functions of different hormones secreted by Adrenal cortex.
10. Write notes on any two of the following;
 - (a) Air Sacs
 - (b) Ctenoid Sclae
 - (c) Goiter
 - (d) STH



Nalanda Open University, Patna
Programme of B.Sc. Part-II Zoology (Subsidiary)
Practical Class and Examination, 2017
Venue:- 1st Floor, Biology Lab Biscomaun Tower, Patna

(A) Practical Counselling Class

<i>Date</i>	<i>Time</i>	Paper
18.03.2017	11.30 A.M. to 02.30 PM	Zoology(Sub) for All(Hons) Students

(B) Practical Examination

<i>Date</i>	<i>Time</i>	Paper
20.03.2017	12.00 Noon to 03.00 PM	Zoology(Sub) for All(Hons) Students

Nalanda Open University
Annual Examination - 2017
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) Heart fo man is :

(a) Digenic	(b) Cardiogenic
(c) Myogenic	(d) Neurogenic
 - (ii) Pace maker influences :

(a) Contraction	(b) Heart beat rate
(c) Blood flow in heart muscles	(d) contraction of heart
 - (iii) Which of the blood group is universal doner?

(a) A	(b) B
(c) AB	(d) O
 - (iv) Main function of kidney is :

(a) Passive absorption	(b) Selective reabsorption
(c) Ultrafiltration	(d) Both (b) and (c)
 - (v) Kреб's cycle occurs in:

(a) cytoplasom	(b) Mitochondria
(c) Chloroplast	(d) Ribosome
 - (vi) Essential amino acids must come from :

(a) Food	(b) Lipid
(c) Rice	(d) Carbohydrate
 - (vii) Non-reducing sugar is :

(a) Maltose	(b) Lactose
(c) Glucose	(d) Sucrose
 - (viii) Vitamin D is absorbed in :

(a) Small intestine	(b) large intestine
(c) Stomach	(d) Pancreas
2. Describe structure and classification Protein.
3. Give an account of Lung Ventilation in mammal.
4. Give an account of mechanism of urine formation.
5. Describe the function of different types of Vitamins.
6. Describe the different factors responsible for blood coagulation.
7. Give an account of β -oxidation of fatty acids
8. Describe Physiology of respiration in mammal.
9. Give an account of cardiac cycle.
10. Write short notes on any **Two** of the following :

(a) Loop of Henle's	(b) ECG
(c) Nephron	(d) Pace Maker



Programme of B.Sc. Part-III Zoology (Hons.)
Annual Practical Counselling & Practical Examination - 2017
 Venue : 1st Floor Biology Lab, Biscomaun Tower, Patna - 800 001

(A) Practical Counselling Zoology

Date	Time	Paper
23.02.2017 to 25.02.2017	11.15 AM to 05.45 AM	V to VIII

(B) Practical Examination Zoology

Date	Time	
	11:15 AM to 2:15 PM	2:45 PM to 5:45 PM
27.02.2017	Paper-V	Paper-VI
28.02.2017	Paper-VII	Paper-VIII

Nalanda Open University

Annual Examination - 2017

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) Male honey bee is:
(a) Diploid (b) Tetraploid (c) Haploid (d) Triploid
 - (ii) Ribosome is discovered by:
(a) Bovari (b) Porter (c) Kollinkar (d) Palade
 - (iii) Lysosome was discovered by:
(a) Palade (b) Robertson (c) deDuve (d) ovaries
 - (iv) Mutation which is fatal to the organism is:
(a) Gene Mutation (b) Lethal Mutation
(c) Point Mutation (d) Reverse Mutation
 - (v) Which of the following structure is vestigial organ in man.
(a) Spleen (b) Coclia
(c) Islet of Langerhans (d) Appendix
 - (vi) Downs Syndrome in human being is due to:
(a) Monosomy (b) Triploid (c) Trisomy (d) Nullisomy
 - (vii) The site of Cholesterol Synthesis is:
(a) Nucleus (b) Endoplasmic reticulum
(c) Golgibody (d) Mitochondria
 - (viii) In DNA replication, the helix is unwound by which enzyme?
(a) Topoisomerase (b) Primase
(c) DNA polymerase (d) Helicase
2. Write an essay on Parthenogenesis.
3. Describe different types of Mutation.
4. Describe linkage and crossing over.
5. Describe Mendal's Law of inheritance.
6. Give an account of Fertilization.
7. Give an account of active transport.
8. Give an account of structure of RNA and its function.
9. Give an account of DNA replication.
10. Write short notes on *any Two* of the following :
 - (a) Lethal mutation (b) Genotype
 - (c) Phenotype (d) Translation



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

Annual Practical Counselling & Practical Examination - 2017

Venue : 1st Floor Biology Lab, Biscomaun Tower, Patna - 800 001

(A) Practical Counselling Zoology

Date	Time	Paper
23.02.2017 to 25.02.2017	11.15 AM to 05.45 AM	V to VIII

(B) Practical Examination Zoology

Date	Time	
	11:15 AM to 2:15 PM	2:45 PM to 5:45 PM
27.02.2017	Paper-V	Paper-VI
28.02.2017	Paper-VII	Paper-VIII

Nalanda Open University

Annual Examination - 2017

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) The Book "Origin of species" was published in :-
 - (a) 1809
 - (b) 1858
 - (c) 1859
 - (d) 1856
 - (ii) Over production of individuals will lead to :-
 - (a) Survival
 - (b) Increase in fitness
 - (c) Struggle for existence
 - (d) Mutation
 - (iii) Egg is fertilized but zygote is unviable due to :-
 - (a) Gametic mortality
 - (b) Zygote mortality
 - (c) Hybrid inviability
 - (d) Hybrid Sterility
 - (iv) Human evolution originated in :-
 - (a) Africa
 - (b) Java
 - (c) France
 - (d) China
 - (v) "Use and Disuse" was proposed by :-
 - (a) Hugo de vries
 - (b) Lamark
 - (c) Weisman
 - (d) Darwin
 - (vi) "Struggle for existence" is related to :-
 - (a) Lamarkism
 - (b) Mendalism
 - (c) Darwinism
 - (d) Wallace
 - (vii) India falls under :-
 - (a) Ethiopian region
 - (b) Oriental region
 - (c) Australian region
 - (d) Palearctic region
 - (viii) Isolation of a segment of population may result in :-
 - (a) Their extinction
 - (b) outbreeding
 - (c) Inbreeding
 - (d) Dominance.
2. Describe Neo-Darwinism.
3. Give an account of oriental region.
4. Write role of isolation in evolution. Describe reproductive isolation.
5. Describe characteristics and fauna of Ethiopian region.
6. Describe evolution of horse.
7. Give an account of theories of animal distribution.
8. Give an account of general peculiarities of oceanic islands.
9. Describe variation with suitable examples.
10. Write notes on any *Two* of the following :
 - (a) Mesozoic era
 - (b) Hybrid sterility
 - (c) Gorilla
 - (d) Lamarkism



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

Annual Practical Counselling & Practical Examination - 2017

Venue : 1st Floor Biology Lab, Biscomaun Tower, Patna - 800 001

(A) Practical Counselling Zoology

Date	Time	Paper
23.02.2017 to 25.02.2017	11.15 AM to 05.45 AM	V to VIII

(B) Practical Examination Zoology

Date	Time	
	11:15 AM to 2:15 PM	2:45 PM to 5:45 PM
27.02.2017	Paper-V	Paper-VI
28.02.2017	Paper-VII	Paper-VIII

Nalanda Open University
Annual Examination - 2017
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. Give an account of histology and function of different hormones secreted by the Adrenal Gland.
2. Describe the structure of Pituitary gland and discuss the functions of different hormones secreted by the gland.
3. Describe the structure and functions of Islets of Langerhans.
4. Give an account of standard deviation with example.
5. Describe merits and demerits of arithmetic mean.
6. Describe Mean, Mode and Median with example.
7. Describe the characteristics of fauna of Cenozoic era.
8. Describe concept of Census.
9. Give an account of different methods of sampling.
10. Write notes on any two of the following:
 - (a) Standard error.
 - (b) Goiter
 - (c) Student-t-test
 - (d) Emergency hormone



Programme of B.Sc. Part-III Zoology (Hons.)
Annual Practical Counselling & Practical Examination - 2017
Venue : 1st Floor Biology Lab, Biscomaun Tower, Patna - 800 001
(A) Practical Counselling Zoology

Date	Time	Paper
23.02.2017 to 25.02.2017	11.15 AM to 05.45 AM	V to VIII

(B) Practical Examination Zoology

Date	Time	
	11:15 AM to 2:15 PM	2:45 PM to 5:45 PM
27.02.2017	Paper-V	Paper-VI
28.02.2017	Paper-VII	Paper-VIII