

Nalanda Open University
Annual Examination – 2023
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

1. Multiple choice questions. (Each question carries **Two** marks).
 - (i) Bipinaria is the larva of which of the following echinoderms?
 - (a) Star fish
 - (b) Sea Urchin
 - (c) Brittle Star
 - (d) Sea Cucumber
 - (ii) Which of the following is called tongue worm?
 - (a) Loligo
 - (b) Pila
 - (c) Nereis
 - (d) Balanoglossus
 - (iii) What is the number of total appendages present in palaemon?
 - (a) 16 Pairs
 - (b) 17 Pairs
 - (c) 18 Pairs
 - (d) 19 Pairs
 - (iv) In pheretima, the pharyngeal nephridia are present in which of the following segments?
 - (a) 6, 7, 8
 - (b) 7, 8, 9
 - (c) 3, 4, 5
 - (d) 4, 5, 5
 - (v) Palaemon belongs to which of the following classes of arthropoda?
 - (a) Crustacea
 - (b) Insecta
 - (c) Onychophora
 - (d) Arachnida
 - (vi) Which one the following is the larva of obelia?
 - (a) Amphiblastula
 - (b) Hydrula
 - (c) Ephyra
 - (d) Planula
 - (vii) Which of the following is pseudocoelomate animal?
 - (a) Ascaris
 - (b) Fasciola
 - (c) Obelia
 - (d) Sycon
 - (viii) Which of the following is the intestinal parasite of man?
 - (a) Wuchereria
 - (b) Fasciola
 - (c) Ascaris
 - (d) Schistosoma
2. Describe the general features and classification Mollusca upto the order with examples.
3. Describe the life-cycle of protozoan which causes Kala-azar and also discuss its control.
4. Discuss the nervous system of pila globosa and compare it with the Unio.
5. Explain the structure and life-cycle of Taenia solium.
6. Describe the excretory organs of Leech with suitable diagram.
7. Discuss the respiratory system of Unio.
8. Describe the mouth parts of cockroach with their functions.
9. Describe the structure and functions of various zooids found in obelia colony.
10. Write short notes on any **Two** of the following:
 - (a) Planula larva
 - (b) Liver fluke
 - (c) Madreporite
 - (d) Torsion in gastropoda



EXAMINATION PROGRAMME, 2023
B.Sc. Physics, Chemistry, Botany, Zoology
& Mathematics (Hons.), Part-I

Date	Papers	Time	Examination Centre
01.09.2023	Honours Paper-I	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
05.09.2023	Honours Paper-II	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
07.09.2023	Hindi Composition-100 or Hindi-50 + Urdu-50 or Eng-50	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
12.09.2023	Chemistry (Sub)-I	10.30 AM to 1.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
13.09.2023	Mathematics (Sub)-I	10.30 AM to 1.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
14.09.2023	Zoology (Sub)-I	10.30 AM to 1.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
15.09.2023	Physics (Sub)-I	10.30 AM to 1.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
16.09.2023	Botany (Sub)-I	10.30 AM to 1.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
18.09.2023	Geography (Sub) P-I	10.30 AM to 1.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna
19.09.2023	Home Science (Sub) P-I	10.30 AM to 1.30 PM	Nalanda Open University, 2 nd Floor, Bismaun Bhawan, Patna

Nalanda Open University
Annual Examination - 2023
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. What is Biosphere? Describe in details about the lithosphere.
2. Describe the abiotic and biotic components of pond ecosystem.
3. What is pollution? Discuss the sources and controls of Air pollution.
4. Explain the modes of parental care in fishes.
5. What is behaviour? Describe various kinds of innate behaviour in animals with suitable examples?
6. Write the names of five pests sugarcane and mention the life-cycle of any one of them.
7. Describe the biological clock and its significance.
8. Describe the various kinds of learnt behaviour with suitable illustration.
9. What do you mean by lac-culture? Describe it in detail.
10. Write short notes on **any two** of the following:
 - (a) Carboncycle
 - (b) Acid rain
 - (c) Mutualism
 - (d) Benthose



Programme of B.Sc. Part-I Zoology (Hons.)
Annual Practical Examination - 2023

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

(A) Annual Practical Counselling Class 2023

Date	Enrollment No.	Batch	Paper	Time
08.09.2023	All old Students (200510001-200510700 and 210510001-210510700) and New Students (220510001-220510010)	Z1	I & II	10.30 AM to 05.00 PM
	220510011-220510090	Z2		
09.09.2023	220510091-220510175	Z3	I & II	10.30 AM to 05.00 PM
	220510176-220510260	Z4		
21.09.2023	220510261-220510340	Z5	I & II	10.30 AM to 05.00 PM
	220510341-220510430	Z6		
26.09.2023	220510431-220510600	Z7	I & II	10.30 AM to 05.00 PM

(B) Annual Practical Examination 2023

Date	Batch	Paper	Time	Paper	Time
10-09-2023	Z1	I	11:00 AM to 02:00 PM	II	02:30 PM to 05:30PM
11-09-2023	Z2	I	11:00 AM to 02:00 PM	II	02:30 PM to 05:30PM
20-09-2023	Z3	I	11:00 AM to 02:00 PM	II	02:30 PM to 05:30PM
22-09-2023	Z4	I	11:00 AM to 02:00 PM	II	02:30 PM to 05:30PM
23-09-2023	Z5	I	11:00 AM to 02:00 PM	II	02:30 PM to 05:30PM
25-09-2023	Z6	I	11:00 AM to 02:00 PM	II	02:30 PM to 05:30PM
27-09-2023	Z7	I	11:00 AM to 02:00 PM	II	02:30 PM to 05:30PM

Nalanda Open University
Annual Examination - 2023
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 canal system in sycon.
2. Discuss the process of conjugation in paramecium.
3. Describe the structure and life-cycle of Taenia solium.
4. Discuss the water vascular system of starfish.
5. Describe the reproductive organs of pheretima.
6. Describe the ultra-structure and functions of plasma membrane.
7. Give an account of the Parthenogenesis.
8. Write an essay on Lamarckism.
9. Describe the process of crossing over and mention its utility.
10. Write short notes on *any Two* of the following:
 - (a) Variation
 - (b) Bipinnaria larva
 - (c) Polymorphism
 - (d) Book lung



**Annual Practical Counselling Classes and Practical Examination Programme, 2023 of
B.Sc., Part-I (Zoology Subsidiary, Paper-I)**

Venue : 1st Floor, Zoology Lab, Biscomaun Tower, Patna

Practical Counselling Class Programme-2023

<i>Date</i>	<i>Enrollment No.</i>	<i>Paper</i>	<i>Time</i>
29.09.2023	For All Old and New Students of B.Sc. Botany, Chemistry, Physics, Mathematics, Geography, Home Science and Yoga (Hons)	I	11.00 AM to 02.00 PM

Practical Examination Programme-2023

<i>Date</i>	<i>Enrollment No.</i>	<i>Paper</i>	<i>Time</i>
30.09.2023	For All Old and New Students of B.Sc. Botany, Physics, Mathematics, Geography, Home Science and Yoga (Hons)	I	11.00 AM to 02.00 PM
03.10.2023	For All Old and New Students of B.Sc. Chemistry (Hons)	I	11.00 AM to 02.00 PM

**Annual Practical Counselling Classes and Practical Examination Programme, 2023 of
B.Sc., Part-I (Zoology Subsidiary, Paper-I)**

Venue : 1st Floor, Zoology Lab, Biscomaun Tower, Patna

Practical Counselling Class Programme-2023

<i>Date</i>	<i>Enrollment No.</i>	<i>Paper</i>	<i>Time</i>
29.09.2023	For All Old and New Students of B.Sc. Botany, Chemistry, Physics, Mathematics, Geography, Home Science and Yoga (Hons)	I	11.00 AM to 02.00 PM

Practical Examination Programme-2023

<i>Date</i>	<i>Enrollment No.</i>	<i>Paper</i>	<i>Time</i>
30.09.2023	For All Old and New Students of B.Sc. Botany, Physics, Mathematics, Geography, Home Science and Yoga (Hons)	I	11.00 AM to 02.00 PM
03.10.2023	For All Old and New Students of B.Sc. Chemistry (Hons)	I	11.00 AM to 02.00 PM

Nalanda Open University
Annual Examination - 2023
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 external features and affinities of pteromyzon.
2. What is retrogressive Metamorphosis? Discuss with special reference to the life-history of Herdmania .
3. Discuss the general characteristic features of Class-Amphibia and classify it upto orders giving examples.
4. Describe the respiratory system of Labeo Rohita.
5. Explain the male urinogenital system of Scoliodon.
6. Discuss the feeding mechanism of a snake.
7. Write an essay on flight adaptation of birds.
8. Describe the general characteristic features, distribution and affinities of Prototheria.
9. Give an account of origin of first land vertebrate.
10. Write notes on any **Two** of the following:-
 - (a) Feather
 - (b) Jacobson's organ
 - (c) Protopterus
 - (d) Ammocoete larva



EXAMINATION PROGRAMME, 2023
B.Sc. Zoology (Hons.), Part-II

Date	Papers	Time	Examination Centre
16.08.2023	Honours Paper-III	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
18.08.2023	Honours Paper-IV	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
21.08.2023	Hindi Composition-100 or Hindi-50 + Urdu-50 or Eng-50	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
12.09.2023	Zoology (Sub)-II	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
13.09.2023	Geography (Sub) P-II	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
14.09.2023	Mathematics (Sub)-II	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
15.09.2023	Botany (Sub)-II	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
16.09.2023	Physics (Sub)-II	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
18.09.2023	Chemistry (Sub)-II	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna
20.09.2023	Home Science (Sub) P-II	2.30 PM to 5.30 PM	Nalanda Open University, 2 nd Floor, Biscomaun Bhawan, Patna

Nalanda Open University
Annual Examination - 2023
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 aortic arches of amphibian, reptiles and birds.
2. Describe the integumental derivatives of mammals.
3. Give an comparative account of kidney of birds and mammal.
4. Compare the heart of fish from the heart of birds.
5. Describe the extra embryonic membrane in chick.
6. Give an account of the different types of cleavage pattern in vertebrate eggs.
7. Discuss the structure of skin of frog and compare it with that of skin of mammal.
8. What is placenta? Describe the function and development of placenta in mammal.
9. Give an account of gastrulation in frog.
10. Write notes on any **Two** of the following:-
 - (a) Microlecithal eggs
 - (b) Medulla Oblongata
 - (c) Mammalian heart
 - (d) Yolk



Nalanda Open University, Patna
Programme of B.Sc. Part-II Zoology (Hons.),
Practical Class and Practical Examination, 2023
Venue : 1st Floor, Zoology / Botany Lab, Biscomaun Tower, Patna
(A) Practical Counselling Class

Date	Enrollment No.	Batch	Paper	Time
29.08.2023	180510001 to 200510350	Z1	III & IV	10:30 AM to 05:00 PM
	200510351 to 210510100	Z2		
01.09.2023	210510101 to 210510300	Z3	III & IV	10:30 AM to 05:00 PM
	210510301 to 210510800	Z4		

(B) Practical Examination, 2023

Date	Batch	Paper	Time	Paper	Time
02.09.2023	Z1	III	11:00 AM to 02:00 PM	IV	02:30 PM to 05:30 PM
03.09.2023	Z2	III	11:00 AM to 02:00 PM	IV	02:30 PM to 05:30 PM
04.09.2023	Z3	III	11:00 AM to 02:00 PM	IV	02:30 PM to 05:30 PM
05.09.2023	Z4	III	11:00 AM to 02:00 PM	IV	02:30 PM to 05:30 PM

Nalanda Open University
Annual Examination - 2023
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. Discuss the digestive system of Scoliodon.
2. Describe the retrogressive metamorphosis in Herdmania.
3. Classify living reptiles upto order with examples.
4. Give an account of the structure and classification of protein.
5. Describe the structure and functions of different hormones secreted by adrenal gland.
6. Describe the distribution and affinities of metatheria.
7. Give a comparative account of aortic arches of reptiles and mammals.
8. Describe the biting mechanism of snakes.
9. Which gland of the body is both exocrine and endocrine? Describe its endocrine parts and the hormones secreted by them.
10. Write notes on any **two** of the following:
 - (a) Placoid scale
 - (b) Oxytocin
 - (c) Goiter
 - (d) Gigantism



B.Sc. Zoology (Subsidiary), Part II
Annual Practical Counselling Classes and Examination 2023
Venue: 1st Floor, Zoology Lab, Biscomaun Tower, Patna-1

(A) Practical Counselling Class 2023

Date	Enrollment No	Batch	Paper	Time
14-09-2023	For All Old and New Students of B.Sc. Botany, Chemistry, Physics, Mathematics, Geography, Yoga and Home Science (Honours) Students	ZI	II	10:30 AM to 01:30 PM

(B) Annual Practical Examination 2023

Date	Enrollment No	Batch	Paper	Time
16-09-2023	For All Old and New Students of B.Sc. Botany, Chemistry, Physics, Mathematics, Geography, Yoga and Home Science (Honours) Students	ZI	II	10:30 AM to 01:30 PM

Nalanda Open University
Annual Examination – 2022
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. Classify living Amphibia up to order with examples.
2. Describe the respiratory system of scoliodon.
3. Describe the systematic position and external features of Herdmania.
4. Give a comparative account of aortic arches of birds and mammals.
5. Give an account flight adaptation in Bird.
6. Describe the distribution and affinities of prototheria.
7. Discuss the structure and classification of carbohydrate.

OR

Discuss the mechanism of oxygen transport in blood

8. Give the names of different hormones with their functions of Adenohypophysis.
9. Describe the development of chick up to three germinal layers.
10. Write notes on any **two** of the following:
 - (a) Placoid scale
 - (b) Snake venom
 - (c) Determinate cleavage
 - (d) Thyroid gland



B.Sc. Zoology (Subsidiary), Part II
Annual Practical Counselling Classes and Examination 2022
Venue: 1st Floor, Zoology Lab, Biscomaun Tower, Patna-1

(A) Practical Counselling Class 2022

Date	Enrollment No	Paper	Time
07-02-2023	For All Old and New Students of B.Sc. Botany, Chemistry, Physics, Mathematics, Geography, Yoga and Home Science (Honours) Students	II	02:00 PM to 04:30 PM

(B) Annual Practical Examination 2022

Date	Enrollment No.	Paper	Time
08-02-2023	For All Old and New Students of B.Sc. Botany, Chemistry, Physics, Mathematics, Geography, Yoga and Home Science (Honours) Students	II	02:00 PM to 04:30 PM

Nalanda Open University
Annual Examination – 2021
(Only For Yoga Hon's)
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 the distribution and affinities of prototheria.
3. Give an account of flight adaptation in Bird.
4. Give an account of structure and classification of protein.
5. Classify living reptiles up to orders with examples.
6. Describe the development of chick up to three germinal layers.
7. Explain the statement "Pituitary gland is a master endocrine gland."
8. Describe the structure and functions of different hormones secreted by Adrenal gland.
9. Discuss retrogressive metamorphosis in Herdmania.
10. Write notes on any two of the following:
 - (a) Goiter
 - (b) Placoid scle
 - (c) Air sacs
 - (d) Hypoxia



B.Sc. Zoology, Chemistry & Physics (Subsidiary), Part II, Practical Exam 2021

[For B.Sc Yoga (Hons. Part-II Students)]

Venue: For Zoology - 1st Floor, Zoology Lab, Biscomaun Tower, Patna-1

For Physics- 1st Floor, Physics Lab, Biscomaun Tower, Patna-1

For Chemistry- 1st Floor, Chemistry Lab, Biscomaun Tower, Patna-1

Annual Practical Examination 2021

Date	Time	
	11.00 AM to 2.00 PM	2.30 PM to 05.30 PM
29.09.2022	-----	Zoology (Subsidiary)
30.09.2022	Chemistry (Subsidiary)	Physics (Subsidiary)

Nalanda Open University
Annual Examination - 2023
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 of Man is:

(a) Cardiogenic	(b) Neurogenic
(c) Myogenic	(d) Digenic
 - (ii) Ultrafiltration occur in:

(a) Renal tubules	(b) Urinary bladder
(c) Blood capillaries	(d) Glomerulus
 - (iii) Non-reducing sugar is:

(a) Lactose	(b) Maltose
(c) Glucose	(d) Sucrose
 - (iv) Amino acids are insoluble in:

(a) Ethanol	(b) Benzene
(c) Acetic acid	(d) Chloroform
 - (v) Lactose is made of:

(a) Glucose + galactose	(b) Fructose + fructose
(c) Glucose + glucose	(d) Glucose + fructose
 - (vi) Ornithine cycle is concerned with:

(a) Excretion	(b) Reproduction
(c) Digestion	(d) Respiration
 - (vii) Pace maker cause:

(a) Heart beat	(b) Heart failure
(c) Hunger	(d) Muscular pain
 - (viii) The heart is covered by a double layered membrane called:

(a) Peritoneum	(b) Pericardium
(c) Parietal Peritoneum	(d) Visceral Peritoneum
2. What do you mean by glycolysis? Describe the various steps of the process of glycolysis.
3. Classify vitamins, discuss the chemistry, source as well as biochemical functions of water soluble vitamins.
4. What are muscle proteins? Explain the chemical composition of skeletal muscles.
5. What is a neuron? Describe the functional architecture of a neuron.
6. Describe the histology of kidney and process of urine formation in man.
7. Give an account of lung ventilation in mammal.
8. Describe the structure and classification of carbohydrates.
9. Give an account of different factors responsible for blood clotting.
10. Write notes on any **Two** of the following:

(a) Conjugated protein	(b) TCA cycle
(c) Pancreatic juice	(d) Hemoglobin



Programme of B.Sc. Part-III Zoology (Hons.)
Annual Practical Counselling & Practical Examination - 2023
 Venue : 1st Floor Zoology Lab, Biscomaun Tower, Patna - 800 001
(A) Practical Counselling Class

Date	Enrollment No.	Batch	Paper	Time
18.08.2023	170510001-190510320	Z1	V, VI, VII & VIII	09:00 AM to 06:30 PM
19.08.2023	190510321-200510175	Z2	V, VI, VII & VIII	09:00 AM to 06:30 PM
22.08.2023	200510176-200510800	Z3	V, VI, VII & VIII	09:00 AM to 06:30 PM

(B) Practical Examination

Date	Batch	Paper	Time	Paper	Time
20.08.2023	Z1	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
21.08.2023	Z1	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM
22.08.2023	Z2	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
23.08.2023	Z2	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM
24.08.2023	Z3	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
25.08.2023	Z3	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM

Nalanda Open University
Annual Examination - 2023
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 carry equal marks.

1. Multiple choice questions. (Each question carries two marks)
 - (i) Which of the following structure is vestigial organ in man :
 - (a) Islet of Langerhans
 - (b) Spleen
 - (c) Cochlea
 - (d) Appendix
 - (ii) Polyploidy means occurrence of:
 - (a) Diploid set of chromosomes
 - (b) Haploid set of chromosomes
 - (c) More than two sets of chromosomes
 - (d) None of these
 - (iii) Ribosome was discovered by:
 - (a) Kollinker
 - (b) Palade
 - (c) Bowari
 - (d) Porter
 - (iv) In DNA replication, the helix is unwound by which enzyme:
 - (a) DNA polymerase
 - (b) DNA helicase
 - (c) Topoisomerase
 - (d) Primase
 - (v) An hypertonic solution RBC:
 - (a) Undergoes endosmosis
 - (b) Shrinks
 - (c) Swells
 - (d) Maintain its shape
 - (vi) Male honey bee is:
 - (a) Diploid
 - (b) haploid
 - (c) Triploid
 - (d) Tetraploid
 - (vii) Which of the following cell organelle is named after his inventor:
 - (a) Ribosom
 - (b) Endoplasmic reticulum
 - (c) Lysosome
 - (d) Golgi complex
 - (viii) The hydrolytic enzymes are present in:
 - (a) Peroxisome
 - (b) Lysosome
 - (c) Ribosome
 - (d) None of these
2. Describe the structure and function of RNA?
3. Give an account of the process of DNA replication.
4. Discuss the ultra structure of mitochondria and explain its function.
5. Describe the process and significance of fertilization.
6. Discuss the role of chloroplast and mitochondria in cytoplasmic inheritance.
7. Describe the chloroplast variation with reference to morphological modification in chromosomes.
8. Write an essay on mutation.
9. Describe the Mendel's laws of inheritance with the help of suitable examples?
10. Write notes on **any Two** of the following:
 - (a) Active transport
 - (b) Kappa particles
 - (c) Translocation
 - (d) Linkage



Programme of B.Sc. Part-III Zoology (Hons.)
 Annual Practical Counselling & Practical Examination - 2023
 Venue : 1st Floor Zoology Lab, Biscomaun Tower, Patna - 800 001
 (A) Practical Counselling Class

Date	Enrollment No.	Batch	Paper	Time
18.08.2023	170510001-190510320	Z1	V, VI, VII & VIII	09:00 AM to 06:30 PM
19.08.2023	190510321-200510175	Z2	V, VI, VII & VIII	09:00 AM to 06:30 PM
22.08.2023	200510176-200510800	Z3	V, VI, VII & VIII	09:00 AM to 06:30 PM

(B) Practical Examination

Date	Batch	Paper	Time	Paper	Time
20.08.2023	Z1	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
21.08.2023	Z1	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM
22.08.2023	Z2	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
23.08.2023	Z2	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM
24.08.2023	Z3	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
25.08.2023	Z3	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM

Nalanda Open University

Annual Examination - 2023

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 carry equal marks.

1. Multiple choice questions. (Each question carries Two marks)
 - (i) The "Use and disuse" principle was proposed by:
 - (a) Drawin
 - (b) Weismann
 - (c) Lamark
 - (d) Hugo de vries
 - (ii) Modern horse appeared in:
 - (a) Pliocene
 - (b) Mesocene
 - (c) Eocene
 - (d) Oligocene
 - (iii) Human evolution originated in:
 - (a) Africa
 - (b) Franche
 - (c) Jawa
 - (d) China
 - (iv) Presence of six digit in hands is the result of:
 - (a) Substantive variation
 - (b) Somatic variation
 - (c) Meristic variation
 - (d) None of these
 - (v) Reproductive isolation refers to:
 - (a) Breeding in captivity
 - (b) Courtship rituals
 - (c) Species breed true
 - (d) Interspecies crosses
 - (vi) The first probable fossil man is:
 - (a) Homo habilis
 - (b) Ramapithecus
 - (c) Pithecanthropus
 - (d) Australopithecus
 - (vii) The most important feature of home sapiens is:
 - (a) Proganathous face
 - (b) Presence of diastema
 - (c) Simian shelf
 - (d) Articulated speech
 - (viii) Which of the following fossil man stood erect first :
 - (a) Java man
 - (b) Peking man
 - (c) Austropithecus
 - (d) Cro-magnon man
2. Define variations. Describe the kinds and causes of variation.
3. Write an essay on Darwinism.
4. What is isolation? Describe various pre mating and post mating isolating mechanism.
5. Give an account of the fossil history of man.
6. Discuss the different realms of the world and their boundaries.
7. Describe different sub-regions with peculiar fauna of Australian region.
8. What do you understand by oceanic islands? What are the general peculiarities of the fauna of oceanic islands.
9. Differentiate between Lamarckism and Darwinism.
10. Write notes on any two of the following:
 - (a) Genetic variation
 - (b) Miohippus
 - (c) Australopithecus
 - (d) Continental islands



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

Annual Practical Counselling & Practical Examination - 2023

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

(A) Practical Counselling Class

Date	Enrollment No.	Batch	Paper	Time
18.08.2023	170510001-190510320	Z1	V, VI, VII & VIII	09:00 AM to 06:30 PM
19.08.2023	190510321-200510175	Z2	V, VI, VII & VIII	09:00 AM to 06:30 PM
22.08.2023	200510176-200510800	Z3	V, VI, VII & VIII	09:00 AM to 06:30 PM

(B) Practical Examination

Date	Batch	Paper	Time	Paper	Time
20.08.2023	Z1	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
21.08.2023	Z1	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM
22.08.2023	Z2	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
23.08.2023	Z2	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM
24.08.2023	Z3	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
25.08.2023	Z3	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM

Nalanda Open University
Annual Examination - 2023
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 ductless cell found in pancreas with their functions.
2. Give an account of hormones secreted by adenohypophysis with their functions.
3. What is sampling? Describe the different methods of sampling.
4. Describe the mean, mode and median with example.
5. Give an account of the structure and function of thyroid gland.
6. Discuss about the concept of census.
7. Give an account of fossil formation in detail.
8. What do you mean by chi-square test, Discuss the common application with suitable examples.
9. Describe the various roles of biostatistics in biology.
10. Write notes on any **two** of the following:
 - (a) Mammalian ovary
 - (b) Jurassic period
 - (c) Cushing's disease
 - (d) Standard error



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(B) Practical Examination

Date	Batch	Paper	Time	Paper	Time
20.08.2023	Z1	V	11:00 AM to 02:00 PM	VI	02.30 PM to 05.30 PM
21.08.2023	Z1	VII	11:00 AM to 02:00 PM	VIII	02.30 PM to 05.30 PM
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