

Nalanda Open University
Annual Examination - 2012
B.Sc. Zoology (Honours), Part-I
Paper-I

Time: 3.00 Hrs.

Full Marks: 80

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

1. Multiple choice questions:
 - (i) Infective stage of mosquito is:
(a) Trophozoite (b) ookinite (c) Schizont (d) Sporozoite
 - (ii) Dipodal type of canal system is found in:
(a) oscarella (b) Geodia (c) Spongilla (d) Both (a) and (c)
 - (iii) Function of dactylozooids in a polymorphic hydrozoan colony is:
(a) Nutrition (b) offence and defence
(c) Locomotion (d) Reproduction
 - (iv) In the middle of scolex which of the following structure is found?
(a) cup-shaped sucker (b) Rostellum
(c) Proglottid (d) Tongue
 - (v) Gravid proglottids contain
(a) Sperms (b) Immature ova
(c) Mature Ova (d) Onchosphere
 - (vi) Trachea are respiratory organs of:
(a) Prawn (b) Cockroach (c) Peripatus (d) Both (b) & (c)
 - (vii) Excretory organ of pila is:
(a) Renal Organ (b) Kaber's Organ
(c) Kidney (d) None
 - (viii) Locomotory organs of starfish is:
(a) Podia (b) Polian Vesicle
(c) Pseudopodia (d) Cilia.
2. What is Kala-azar? Explain with reference to life cycle of *Lieshmania donovani*.
3. Give an account of canal systems in sponges.
4. What is metagenesis? Explain it with reference to the life cycle of *Obelia*.
5. Give an account of life cycle of *sacculina*.
6. Describe the Water Vascular system of starfish.
7. Give an account of respiratory system of pila and compare it with that of unio.
8. Give an account of respiratory system of Prawn.
9. Describe the haemocoelomic system of leech.
10. Write notes on any **two** of the following:
 - (a) Polymorphism
 - (b) Hexacanth
 - (c) Tornaria larva
 - (d) Bipinnaria larva



Nalanda Open University
Annual Examination - 2012
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 different components of a pond ecosystem.
2. What do you understand by biogeochemical cycle? Describe nitrogen cycle with suitable example.
3. Give an account of parental care in fishes.
4. Give an account of causes, impact and management of Water Pollution.
5. What is division of labour? Explain with the reference to the social activities of honey bee.
6. What do you understand by endangered species? Mention various measures for Wild life conservation.
7. Name the five pests of sugarcane and describe the life cycle of any two of them and their control.
8. Describe the process of pisciculture in a fresh water system.
9. Give the characteristics of lithospheres.
10. Write notes on any **two** of the following:
 - (a) Global Warming
 - (b) Learned behaviour
 - (c) Food chain
 - (d) Carbon Credits.



**Programme of B.Sc Part-I Zoology (Hons.) Practical
 Counselling Class & Examination 2012**

Practical Counselling Class

<i>Date</i>	<i>Papers</i>	<i>Time</i>	<i>Batch</i>	<i>Enrollment No.</i>	<i>Venue</i>
13.04.2012	I	11:15 AM to 03:15 PM	Z1	100510005 to 0131 110510002 to 0063	4th Floor, Biology Lab Biscomaun Bhawan.
14.04.2012	I	11:15 AM to 03:15 PM	Z2	110510064 to 0130	4th Floor, Biology Lab Biscomaun Bhawan.
16.04.2012	II	11:15 AM to 03:15 PM	Z1	100510005 to 0131 110510002 to 0063	4th Floor, Biology Lab Biscomaun Bhawan.
17.04.2012	II	11:15 AM to 03:15 PM	Z2	110510064 to 0130	4th Floor, Biology Lab Biscomaun Bhawan.

Practical Examination

<i>Date</i>	<i>11:15 A.M. to 02:15 P.M.</i>	<i>2:30 P.M. to 05:30 P.M.</i>	<i>Batch</i>	<i>Enrollment No.</i>	<i>Venue</i>
18.04.12	Paper - I	Paper - II	Z1	100510005 to 0131 110510002 to 0063	4th Floor, Biology Lab Biscomaun Bhawan.
19.04.12	Paper - I	Paper - II	Z2	110510064 to 0130	4th Floor, Biology Lab Biscomaun Bhawan.

Nalanda Open University
Annual Examination - 2012
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. Give an account of Canal system of sycon.
2. Describe the structure and locomotion in Paramecium.
3. Give an account of Water Vascular system of starfish.
4. Write an essay on "Parthenogenesis".
5. Describe the structure of DNA.
6. Describe the respiratory system of Pila.
7. Give an account of variation and their role in evolution.
8. Describe the respiratory system of Prawn.
9. Describe the life cycle of Fasciola hepatica.
10. Write notes on any **two** of the following:
 - (a) Darwinism
 - (b) Nephridia
 - (c) Book–lung
 - (d) Scolex
 - (e) Golgi Complex

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Nalanda Open University
Annual Examination - 2012
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. Give an account of external features and affinities of Petromyzon.
2. Describe the Urinogenital system of Scoliodon.
3. Give an account of characteristic features and classification of Reptilia giving suitable example of each order.
4. Describe the origin of Amphibia.
5. Give an account of flight adaptations in Birds.
6. Write an essay on adaptive radiation in mammals.
7. Describe the characteristic features distribution and affinities of Metatheria.
8. Describe the habit, habitat, systematic position and external features of Herdmania.
9. Give an account of digestive system of Pigeon.
10. Write notes on any **two** of the following:
 - (a) Neoteny
 - (b) Ampulla of Lorenzini
 - (c) Air sacs
 - (d) Wheel organ



Nalanda Open University
Annual Examination - 2012
B.Sc. Zoology (Honours), Part-II
Paper-IV

Time: 3.00 Hrs.

Full Marks: 80/75

Answer any three questions. All questions carry equal marks.

1. Give an account of derivatives of integument of mammals.
2. Give a comparative account of aortic arches of fish, reptile and mammal.
3. Describe the mammalian heart and compare with that of frog's heart.
4. Give a comparative account of brain of frog and a bird.
5. Give an account of Kidney of a amphibia and compare it with that of reptile.
6. Describe the development placenta in mammals.
7. Give an account of development of Chick-embryo upto three germinal layers.
8. Describe the development of eyes in chick.
9. Describe the different types of eggs found in vertibrates.
10. Write short notes on any two of the following:
 - (a) Blastula
 - (b) Sebaceous gland
 - (c) Single and double circulation
 - (d) Medulla Oblongata

Nalanda Open University
Annual Examination - 2012
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. Give an account of systematic position and external features of Herdmania.
2. Classify phylum reptilia giving characters and example of each order.
3. Give an account of urinogenital system of Scoliodon.
4. Describe structure and classification of Protein.
5. Describe the structure and functions of Pituitary gland.
6. Give an account of migration in birds.
7. Give a comparative account of heart of Amphibia and reptilia.
8. Describe the development of chick upto three germinal layers.
9. Describe the mechanism of oxygen transport in blood during respiration in mammal.
10. Write notes on any **two** of the following:
 - (a) Cleavage
 - (b) Goiter
 - (c) Gastrulation
 - (d) Echidina

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Nalanda Open University
Annual Examination - 2012
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:
 - (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) Krebs cycle occurs in:
(a) cytoplasm (b) Mitochondria (c) Chloroplast (d) Ribosome
 - (iv) Pacemaker of the heart is:
(a) S A node (b) I A node (c) A V septum (d) A V node
 - (v) Collagen is a:
(a) Simple protein (b) Conjugated protein
(c) Derived protein (d) Denatured protein
 - (vi) Urea is transported by :
(a) Blood (b) Erythrocytes (c) Plasma (d) Leucocytes.
 - (vii) Lipid is made up of:
(a) Glycerol + Fatty acid (b) Wax + Fatty acid
(c) Glycerol + Lactic acid (d) Fats + oils.
 - (viii) Amino acids are building blocks of
(a) Nucleic acids (b) Proteins (c) Carbohydrates (d) Lipids.
2. Describe the process of oxygen transport in mammalian respiration.
3. Describe the structure and classification of carbohydrates.
4. What are the factors responsible for blood clotting.
5. Describe digestion and absorption of carbohydrates in mammal.
6. Give an account of glycolysis.
7. Give an account of structure of nephron and its functions.
8. What do you mean by Vitamins? Classify different types of Vitamins.
9. What is Cardiac output? Describe different types of cardiac muscles.
10. Write notes on any two of the following:

- (a) Muscle Contraction
- (b) Loop of Henle
- (c) Energetics of TCA cycle
- (d) Bohr's effect



Nalanda Open University
Annual Examination - 2012
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:
 - (i) Down's Syndrome in human being is due to:
(a) Monosomy (b) Triploidy (c) Trisomy (d) Nullisomy.
 - (ii) Active transport:
(a) Requires energy (b) Produces ATP (c) Releases energy
(d) Produces a toxic substance.
 - (iii) Male honeybee is:
(a) triploid (b) Haploid (c) Tetraploid (d) Diploid
 - (iv) Variation in morphology of individual chromosome is:
(a) Poliploidy (b) Cromosomal aberration (c) Haploidy (d)
Inversion
 - (v) The site of cholesterol synthesis is:
(a) Nucleus (b) Endoplasmic reticulum
(c) Golgi body (d) Mitochondria
 - (vi) In hypertonic solution, RBC is:
(a) Shrinks (b) Undergoes indosmosis (c) Swells (d) Maintains its
shape.
 - (vii) Transcription is most similar to:
(a) Chemiosmosis (b) DNA replication
(c) Translation (d) Facilated transport.
 - (viii) Ribosome was discovered by:
(a) Bovari (b) Porter (c) Kollinker (d) Palade.
2. Describe DNA replication.
3. Describe the role of endoplasmic reticulum in cell secretion.
4. Write an essay on mutation.
5. Give an account of fertilization.
6. Describe the types of chromosomes and their functions.
7. Describe the types of extranuclear elements.
8. Give an account of artificial parthenogenesis and compare it with natural Parthenogenesis.
9. Give an account of structure of RNA and its types.
10. Write short notes on any two of the following:

- (a) Purines and Pyrimidines.
- (b) Passive transport
- (c) Lethal mutation.



Nalanda Open University
Annual Examination - 2012
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:
 - (i) Most Primitive fossil of horse is:
(a) Equus (b) Merichippus (c) Mesohippus (d) Eohippus.
 - (ii) The presence of six digits on hand is the result of :
(a) Meristic variation (b) Somatic variation
(c) Substantive variation (d) None of these.
 - (iii) "Struggle for existence" and "Survival of fittest" are 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) Which of the following fossil man stood erect first?
(a) Java Man (b) Peking man
(c) Australiopithecus (d) Cro-magnon man
 - (vi) Role of isolation in evolution is:
(a) Differentiation of species (b) Maintenance of species
(c) Evolutionary divergence (d) Extinction of species.
 - (vii) Lamarck was:
(a) An Austrian Monk (b) A German botanist
(c) An English mathematician (d) A French biologist
 - (viii) India falls under which region:
(a) Ethiopian region (b) Oriental region
(c) Australian region (d) Palearctic region.
2. Give an account of the evolution of man.
3. Give an account of Australian region with their fauna.
4. What do you understand by oceanic islands? Discuss their general peculiarities.
5. Describe the Lamarck theory of organic evolution.
6. Give an account of different isolating mechanism and their role in evolution.
7. Write about the various kinds and causes of variation.
8. Give an account of Neo-Darwinism.
9. Give an account of ancestry of horse.
10. Write short notes on any two of the following:
 - (a) Burmunda Island (b) Cenozoic era
 - (c) Mountain horse (d) Hybrid sterility.

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MOST IMPORTANT NOTICE

: अत्यन्त महत्वपूर्ण सूचना :

बी०एस०सी०(प्रतिष्ठा)पार्ट-III एवं मनोविज्ञान(प्रतिष्ठा)पार्ट- III के सभी विद्यार्थियों को सूचित करना है कि उनके सामान्य एवं पर्यावरणीय अध्ययन **(G.S)** की परीक्षा 2012 जो पूर्व से दिनांक-23.02.2012 को द्वितीय पाली समय 12 से 3 बजे, अपराह्न में निर्धारित थी, अब यह

परीक्षा दिनांक 24.02.2012 को द्वितीय पाली समय 12 से 3 बजे, अपराह्न में संचालित होगी
। तदनुरूप परीक्षा में उपस्थित होंगे।

Nalanda Open University
Annual Examination - 2012
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. Give an account of structure and functions of thyroid gland.
2. Describe the histology of testis and functions of hormone secreted by it.
3. Describe the actions of hormones secreted by the pituitary gland.
4. Describe the characteristics and fauna of Cenozoic era.
5. Give an account of mechanism of fossil formation.
6. Describe the sampling methods with example.
7. Give an account Normal distribution.
8. Describe the method of determining the standard error and its use.
9. Write about Mean, Mode & Median with example.
10. Write short notes on any **two** of the following:

(a) Concept of Census	(b) Age determination of fossil
(c) Islets of Langerhans	(d) Adrenal medulla.

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Programme of B.Sc Part-III Zoology (Hons.) Practical Counselling Class & Examination 2012

Practical Counselling Class

<i>Date</i>	<i>Papers</i>	<i>Time</i>
24.02.12 to 27.02.12	V to VIII	11:15 AM to 05:15 PM

Practical Examination

<i>Date</i>	<i>11:15 A.M. to 02:15 P.M.</i>	<i>2:15 P.M. to 5:15 P.M.</i>
28.02.12	Paper-V Batch- Z1	Paper-V Batch- Z2
29.02.12	Paper-VI Batch- Z1	Paper-VI Batch- Z2
01.03.12	Paper-VII Batch- Z1	Paper-VII Batch- Z2
02.03.12	Paper-VIII Batch- Z1	Paper-VIII Batch- Z2

Details of Batches

<i>Batch</i>	<i>Enrollment No.</i>
Batch- Z1	70510072, 80510005-0153, 90510001-0056
Batch- Z2	90510057-90510153

Venue- Biscomaun Bhawan, 4th Floor, Biology Laboratory, N.O.U. Patna