

# Nalanda Open University

Annual Examination - 2016

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) Two types of nucleus are found in:  
(a) Vorticella (b) Amoeba (c) Paramecium (d) Entamoeba
  - (ii) Infective stage of *Entamoeba histolytica* is:  
(a) Uninucleate Cyst (b) Binucleate Cyst  
(c) Tetranucleate Cyst (d) Pentanucleate Cyst
  - (iii) In a polymorphic hydzoan colony the function of dactylozooids is:  
(a) Nutrition (b) Offence and defence  
(c) Respiration (d) Reproduction
  - (iv) Trochophore is larva of:  
(a) Earthworm (b) Cockroach (c) Neries (d) Lumbricus
  - (v) In the middle of scolex, which of the following structure is found?  
(a) Cup shaper sucker (b) Rosetellum  
(c) Proglattid (d) Tougue
  - (vi) Locomotory organ of starfish is:  
(a) Pseudopodia (b) Cilia (c) Flagella (d) Podia
  - (vii) Intemediate host of *Wuehereria bancrofti* is:  
(a) Sand fly (b) Tsetse fly  
(c) Female culex mosquito (d) Horse fly
  - (viii) Simplest type of canal system in sponges is:  
(a) Sycon type (b) Ascon type (c) Diplodal type (d) Euryphylous type
2. Describe the life cycle of a protozoa which causes kala-azar.
3. Describe the life of Sacculina.
4. Give an account of water-vascular system of starfish.
5. Describe respiratory system of *Palaemon*.
6. Describe lify cycle of *Taenia solioum*.
7. White is alternation of generation? Explain with the reference of life cycle of *Obelia*.
8. Describe respiratory system of *Pila*.
9. Give an account of canal systems of sponges.
10. Writ e short notes on any **Two** of the following:  
(a) Bipinnaria larva (b) Microfilaria (c) Kaler's organ (d) Parapodium



**Nalanda Open University**  
**Annual Examination - 2016**  
**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 fresh water pond ecosystem.
2. What is biogeochemical cycle? Describe nitrogen cycle.
3. Describe parental care in fishes.
4. Give an account of lac culture in India.
5. Write an essay on wild life conservation in India.
6. Write the name of five pests of sugarcane and mention the life cycle of any two of them and their control.
7. Describe cause and control measures of water pollution.
8. Describe the biological clock and its significance.
9. Write an essay on biospheres.
10. Write short notes on *any two* of the following:
  - (a) Food chain
  - (b) Bee hive
  - (c) Innate behaviour
  - (d) Ozon layer



**Nalanda Open University**  
**Annual Examination - 2016**  
**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 in Paramecium.
2. Give an account of canal system of Sycon.
3. Describe structure of DNA.
4. Give an account of Parthenogenesis.
5. Describe the life cycle of Taenia Solium
6. Describe digestive system of Prawn.
7. Write an essay on variation.
8. Describe respiratory system of Pila.
9. Describe water vascular system of starfish.
10. Write short notes on *any two* of the following:
  - (a) Golgi Body
  - (b) Redia Larva
  - (c) Statocyst in Prawn
  - (d) Linkage.



**Nalanda Open University**  
**Annual Examination - 2016**  
**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. Give an account of flight adaptation in birds.
3. Describe distribution, characters and affinities of Metatheria.
4. Give an account of systematic position and feeding. Mechanism of Herdmania.
5. Describe respiratory system of Scoliodon.
6. Give an account of adaptive radiation in mammals.
7. Classify Amphibia up to orders giving characters and examples.
8. Describe feeding mechanism of a snake.
9. Give an account of origin of first land vertebrate.
10. Write short notes on any two of the following:
  - (a) Kangaroo
  - (b) Neoteny
  - (c) Oral Hood
  - (d) Dipnoi



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**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 the integumental derivatives of mammals.
2. Give an account of development of mammalian placenta.
3. Describe development of eye in chick embryo.
4. Compare brain of frog with that of brain of bird.
5. Describe the development of chick embryo upto three-germinal layers.
6. Describe different types of eggs in Vertebrates.
7. Give a comparative account of integument (skin) of frog and bird.
8. Describe the heart of frog and compare it with that of heart of reptile.
9. Give an account of gastrulation in frog.
10. Write short notes on any Two of the following ;
  - (a) Morula
  - (b) Bicuspid Valve
  - (c) Metanephros Kidney
  - (d) Airsacs



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**Paper-II**

**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 bird migration.
3. Describe structure and functions of Pituitary gland.
4. Give an account of structure and classification of Protein.
5. Describe the respiratory system of Scoliodon.
6. Describe development of Mammalian placenta.
7. Give an account of characters and affinities of Prototheria.
8. Describe the development of chick upto three germinal layers.
9. Give comparative account of aortic arches of amphibia and bird.
10. Write short notes on any two of the following;
  - (a) Echidina
  - (b) Ctenoid Sclae
  - (c) Goiter
  - (d) Air sacs.



**Nalanda Open University**  
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**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 maxrin 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) Pacemaker of the heart is :
    - (a) S A node
    - (b) I A node
    - (c) AV node
    - (d) AV Septum
  - (iv) Essential amino acids must come from :
    - (a) Food
    - (b) Lipid
    - (c) Fat
    - (d) Carbohydrates
  - (v) Exercretory organs have evolved to excrete mainly:
    - (a) Water
    - (b) Urea and Water
    - (c) Salts
    - (d) Nitrogenous Wastes.
  - (vi) EMP is another name of :
    - (a) Krebs Cycle
    - (b) E.T.S
    - (c) Glycolysis
    - (d) Oxysomes.
  - (vii) Blood Capillaries can easily rupture due to deficiency of :
    - (a) Vit-A
    - (b) Vit-C
    - (c) Vit-D
    - (d) Vit-K
  - (viii) Which of these amino acids have two NH<sub>2</sub> groups ?
    - (a) Serine
    - (b) Valine
    - (c) Glycine
    - (d) Lysine
2. Describe structure and classification of carbohydrates.
3. Give an account of blood clotting mechanism.
4. Describe the different stages of glycolysis and its energetics.
5. Describe different types of Vitamins and their functions.
6. Give an account transport of oxygen and Carbondioxide in a mammal.
7. Classify aminoacids with examples.
8. Give an account of  $\beta$ -oxidation of fatty acids.
9. Give an account of cardiac cycle.
10. Write short notes on any *Two* of the following :
  - (a) Loop of Henle
  - (b) Bile
  - (c) Energetics of TCA cycle
  - (d) Pace Maker



# Nalanda Open University

Annual Examination - 2016

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) Which is trisomic condition?  
(a)  $2n-1$                       (b)  $2n+1$                       (c)  $2n+2$                       (d)  $2n+3$
  - (ii) Male honey bee is :  
(a) Triploid                      (b) Haploid                      (c) Tetraploid                      (d) Diploid
  - (iii) The site of cholesterol synthesis is :  
(a) Nucleus                      (b) Endoplasmic reticulum  
(c) Golgi body                      (d) Mitochondria
  - (iv) When many sperms enter in the egg, the condition is known as :  
(a) Physiological polyspermy                      (b) Pathological polyspermy  
(c) Polyandry                      (d) Polygamy
  - (v) Variation in the morphology of individual chromosome is :  
(a) Haploidy                      (b) Polyploidy  
(c) Inversion                      (d) Chromosomal aberration
  - (vi) Insulin is a :  
(a) Carbohydrate                      (b) Fat                      (c) Protein                      (d) None
  - (vii) Polypeptide is assembled on :  
(a) DNA molecule                      (b) Nuclear membrane  
(c) Nuclear pore                      (d) Ribosome
  - (viii) In hypertonic solution, RBC :  
(a) Shrinks                      (b) Undergoes indosmosis  
(c) Swells                      (d) Maintains its shape
2. Give an account of DNA replication.
3. Write an essay on mutation.
4. Describe the process of fertilization.
5. Give an account of structure and function of mitochondria.
6. Describe the process of active transport.
7. Give the different types of chromosome and their functions.
8. Describe structure and function of endoplasmic reticulum.
9. Describe the types of extranuclear elements.
10. Write short notes on *any Two* of the following :
  - (a) Genotype                      (b) Lethal mutation
  - (c) Klinefelter's syndrome                      (d) Cytoskeleton





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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) Meshippus
    - (d) Ehippus
  - (ii) "Struggle for existence" is related with :
    - (a) Lamarkism
    - (b) Mendalism
    - (c) Darwinism
    - (d) Wallace
  - (iii) Ramaphithecus is fossil recovered from :
    - (a) Germany
    - (b) Java
    - (c) Desert of Africa
    - (d) Shivalik hills of India
  - (iv) India falls under :
    - (a) Ethiopian region
    - (b) Oriental region
    - (c) Australasian region
    - (d) Palearctic region
  - (v) Presence of six digit on hand in man is the result of :
    - (a) Meristic variation
    - (b) Somatic variation
    - (c) Substantive variation
    - (d) None of these
  - (vi) Isolation of a segment of population may result in :
    - (a) Their extinction
    - (b) Inbreeding
    - (c) Outbreeding
    - (d) Dominance
  - (vii) Human evolution originated in :
    - (a) Africa
    - (b) Java
    - (c) France
    - (d) China
  - (viii) The era in which man diversified is :
    - (a) Coenozoic
    - (b) Mesozoic
    - (c) palaeozoic
    - (d) All
2. Write an essay on fossil history of man.
3. Describe variation with suitable example.
4. Describe isolating mechanism and its role in evolution.
5. Give an account of characteristic features and fauna of Australasian region.
6. Give an account of animal distribution.
7. What is Neo-Darwinism? Describe Neo-Darwinism.
8. Give an account of general peculiarities of oceanic islands.
9. Give an account of Zoogeographical realms of the world.
10. Write short notes on any *Two* of the following :
  - (a) Gorilla
  - (b) Hybrid sterility
  - (c) Zygote mortality
  - (d) Lamark.



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**Paper-VIII**

**Time: 3.00 Hrs.**

**Full Marks: 80**

*Answer any Five questions. All questions carry equal marks.*

1. Describe the histological structure of thyroid gland and functions of hormones secreted by this gland.
2. Give an account of structure of pituitary gland and functions of hormones secreted by adenohypophyses.
3. Describe endocrinal functions of pancreas.
4. What are fossils? Describe the mechanism of fossil formation.
5. Describe student-t-test with example.
6. Describe role of biostatistics in biology.
7. Give an account of different methods of sampling.
8. Write an essay on Cenozoic era.
9. Describe the method of determining the standard error and its uses.
10. Write short notes on any two of the following :
  - (a) Adrenal medulla
  - (b) Radio-carbon method
  - (c) Concept of census
  - (d) Mode and median

