



# UNIVERSITY OF THE PUNJAB

**B.A. / B.Sc. Part-II**  
**Annual Exam - 2017**

Roll No. ....

**Subject: Zoology-II**  
**PAPER: A (Chordate Diversity)**

**TIME ALLOWED: 2 hrs.**  
**MAX. MARKS: 15**

**ATTEMPT THIS PART-II ON THE SEPARATE ANSWER SHEET PROVIDED.**

## **Part II (Subjective type)**

**Q3. Give brief answers to any three of the following questions: 3x3x3=9**

1. What are the two methods of gill ventilation that the fishes use ?
2. What is function of midgut caecum in cephalochordates ?
3. What is difference between hibernation in ground squirrel & winter sleep in bears?
4. What are the four kinds of glands present in mammals?
5. What is embryonic diapause?

**Q4: Attempt any one Question from following: 6**

1. What are different modifications in digestive system of birds?
2. Describe different ways of locomotion in Amphibians?



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**Annual Exam - 2017**

**Subject: Zoology-II**  
**PAPER: A (Chordate Diversity)**

**TIME ALLOWED: 1 hr.**  
**MAX. MARKS: 20**

## **ATTEMPT THIS PART-I ON THIS QUESTION SHEET ONLY**

**Note: Attempt Part-I on the question sheet and Part-II on the separate answer sheet provided. Attempt this part in the given time of one hour and hand over to the Centre Superintendent who will provide you answer sheet for Part-II.**

### **Part I (Objective type)**

Q 1. Tick the correct option from the MCQs given below: (1/2x20=10)

1. Modified pelvic fins called claspers are present for sperm transfer in:

- a) Sharks
- b) Bony fishes
- c) Lamprey
- d) Myxini

2. Salamanders and newts are classified in order:

- a) Gymnophiona
- b) Anura
- c) Caudata
- d) none of these

3. These are common in amphibians:

- a) Mimicry
- b) Cryptic coloration
- c) Aposematic coloration
- d) All of these

4. The larvae of lampreys are:

- a) Herbivores
- b) Detritivores
- c) Filter feeders
- d) Insectivores

5. Anapsid skull is present in:

- a) Lizards
- b) Turtles
- c) Birds
- d) Amphibians

6. Birds have descended from ancient:

- a) Plesiosauria
- b) Archiosauria
- c) Lepidosauria
- d) none of these

7. Postsacral vertebrae fused to form rod-like urostyle in:

- a) Anura
- b) All of these
- c) Caudata
- d) Gymnophiona

8. The number of roots in molar teeth of upper jaw is:

- a) One
- b) Two
- c) Three
- d) Four

9. The feathers that provide insulation for adult and immature birds are:

- a) Contour feathers
- b) Down feathers
- c) Filoplumes
- d) None of these

10. The oviparous mammals that also possess a cloaca are:

- a) Marsupials
- b) Monotremes
- c) Both a & b
- d) Eutherians

11. The long hindlimbs of pelvic girdle of anurans are modified for:

- a) Walking
- b) Jumping
- c) Swimming
- d) Running

12. A second ancient birds, SINORNIS, was discovered in:

- a) China
- b) Germany
- c) America
- d) Japan

P.T.O

13. Paired clavicles fused medially and ventrally into furcula in:
- Amphibians
  - Fishes
  - Mammals
  - Birds
14. The most primitive vertebrate is:
- Lamprey
  - Hagfish
  - Placoderm
  - Conodonts
15. The shortest gestation period is found in:
- Prototheria
  - Metatheria
  - Eutheria
  - none of these
16. Bony fishes belong to class:
- Chondrichthyes
  - Myxini
  - Anura
  - Osteichthyes
17. In frog, valve in Conus arteriosus is called:
- spiral valve
  - Mitral valve
  - Both a & b
  - Semilunar
18. Sharks have tough skin with:
- Cycloid scales
  - Placoid scales
  - Ganoid scales
  - Simple scales
19. The gestation period of an elephant:
- 9 months
  - 15 months
  - 19 months
  - 12 months
20. The median eye consisting of lens, nerve and retina is present in:
- Lizards
  - snakes
  - Anura
  - Tuatara

Q2. Fill in the blanks:

(1/2x20=10)

- The middle ear in mammals contain three ear \_\_\_\_\_
- The ventral portion of the shell in turtles is the \_\_\_\_\_
- Gas exchange across the skin is called \_\_\_\_\_ respiration.
- Teeth in \_\_\_\_\_ are actually modified placoid scales.
- Frogs, toads and salamanders belong to the class \_\_\_\_\_
- \_\_\_\_\_ is a resistant protein found in epidermally derived structures of amniotes.
- The \_\_\_\_\_ artery or aortic arch III carries blood to head.
- A urinary bladder in frogs is ventral outgrowth of the \_\_\_\_\_
- The dorsal portion of shell of turtle is called \_\_\_\_\_
- The order crocodilian has \_\_\_\_\_ species.
- Venom glands inject venom into the \_\_\_\_\_ of snakes.
- Exchanges between maternal & fetal circulatory systems occur by an organ called \_\_\_\_\_.
- Predatory mammals have \_\_\_\_\_ teeth for killing and tearing prey.
- In crocodiles, the tail is used for swimming, defensive and \_\_\_\_\_ purposes.
- Hoofs are the characteristics of \_\_\_\_\_ mammals only.
- In reptiles, Ecdysis generally starts in the \_\_\_\_\_ regions.
- Eggs are incubated in a ventral \_\_\_\_\_ in female Echidnas.
- In snakes, the courtship is based primarily on \_\_\_\_\_ stimulation.
- The membrane which is ventral outgrowth of the gut and store nitrogenous wastes in reptilian embryos is \_\_\_\_\_.
- Paired appendages and jaws are absent in \_\_\_\_\_ fishes



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**B.A. / B.Sc. Part-II**  
**Annual Exam - 2017**

Roll No. ....

**Subject: Zoology-II**  
**PAPER: B (Animal Form and Function)**

**TIME ALLOWED: 2 hrs.**  
**MAX. MARKS: 15**

**ATTEMPT THIS PART-II (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED.**

## **Part II (Subjective)**

**Q3 Give brief answers to any ten of the following questions.**

**1 x 10 =10**

1. What are cartilages?
2. What are interneurons? Give their functions.
3. What is Jacobson's organ?
4. Give the function of prolactin in fishes?
5. What is negative feedback?
6. Write two non-circulatory functions of hemolymph?
7. What is the advantage of single circuit circulation?
8. What is bimodal breathing?
9. Differentiate between hibernation and aestivation?
10. Give the osmoregulatory strategy of fresh water fish.
11. How filtration takes place in nephron?
12. What is parthenogenesis?
13. Name the extra embryonic membranes formed in the reptiles and give one function each?
14. What are two important evolutionary adaptations in reptiles for reproduction and development?
15. What do you mean by sonar?

**Q4. Attempt one of the following questions.**

**5**

1. Write a note on georeceptors found in invertebrates.
2. a) Discuss the working of pulmonate lung.  
b) Discuss endothermy in insects.

**5**

**3**

**2**



**B.A. / B.Se. Part-II**  
**Annual Exam - 2017**

**TIME ALLOWED: 1 hr.**  
**MAX. MARKS: 20**

**ATTEMPT THIS PART-I (OBJECTIVE) ON THIS QUESTION SHEET ONLY**

### Part I (objective)

**Q1. Select the right answer. Over writing and cutting is not allowed.  $\frac{1}{2} \times 20=10$**

1. Thermoregulatory center in mammals is located in:
  - a) Pituitary body
  - b) Skin
  - c) Hypothalamus
  - d) Diencephalon
2. Iris in vertebrates' eye functions to:
  - a) Alter the diameter of pupil
  - b) Move the lens
  - c) Close the eye lids in bright light
  - d) Secrete the vitreous humor
3. Scapula is the bone of:
  - a) Skull
  - b) Pelvic girdle
  - c) Pectoral girdle
  - d) Vertebral column
4. Maximum absorption takes places in:
  - a) Duodenum
  - b) Stomach
  - c) ileum
  - d) Rectum
5. Ruminant mammals made the herbivorous lifestyle more effective because gut microorganism produces
  - a) Cellulose
  - b) Cellulase
  - c) Amylase
  - d) Pepsinogen
6. Leutinizing hormone(LH) is produced by:
  - a) Anterior lobe of pituitary
  - b) Posterior lobe of pituitary
  - c) Thyroid
  - d) Endometrium
7. The junction between the axon of one neuron and the dendrite of the other neuron is referred as
  - a) Synapse
  - b) Cleavage
  - c) Tight junction
  - d) Desmosome
8. Locomoters cilia and flagella occur in every animal phylum except
  - a) Arthropoda
  - b) Chordate
  - b) Porifera
  - d) Protozoa
9. Stratum corneum in mammals is made up of :
  - a) Dermal cells
  - b) Keratinized cells
  - c) Hypodermal cells
  - d) Columnar cells
10. The cells which are produced as a result of cleavage embryonic development are known as:
  - a) Stem cells
  - b) Morula
  - c) Diploid cells
  - d) Blastomeres
11. Growth hormone influences which particular target tissue:
  - a) Growth of muscles
  - b) Growth of skeleton
  - c) Both a and b
  - d) Non of above
12. Helper T cells stimulate :
  - a) Rapid division of lymphocytes
  - b) Destroy body cells infected with virus
  - c) Stop immune response
  - d) Phagocytic lymphocyte
13. Digestion began in :
  - a) Stomach
  - b) Oesophagus
  - c) Small intestine
  - d) Oral cavity
14. The loop of Henle is crucial to kidney function because
  - a) it supplies the blood to the kidney cells
  - b) it is the point of exit
  - c) the loop provides the energy for the functioning of the kidney
  - d) it provides the countercurrent arrangement needed to concentrate the urine

**P.T.O.**

15. Excretion through Malpighian tubules involves active transport of which ions into tubules from the surroundings
- |              |                 |
|--------------|-----------------|
| a) Potassium | b) Chloride     |
| c) Sodium    | d) All of above |
16. Telencephalon is part of the
- |                |              |
|----------------|--------------|
| a) Hind brain  | b) Midbrain  |
| c) Spinal cord | d) Forebrain |
17. Point of entry of sperm in frog egg
- |                       |                  |
|-----------------------|------------------|
| a) Animal pole        | b) Vegetal pole  |
| c) Gray crescent area | d) None of these |
18. Thermoregulatory center in mammals is located in:
- |                   |                  |
|-------------------|------------------|
| a) Pituitary body | b) Skin          |
| c) Hypothalamus   | d) Diencephalon. |
19. Muscle contraction is stimulated by
- |                  |                |
|------------------|----------------|
| a) Troponin      | b) Tropomyosin |
| c) Acetylcholine | d) Myosin      |
20. Protein produces number of calories per gram
- |        |        |
|--------|--------|
| a) 3.3 | b) 4.4 |
| c) 4.6 | d) 9.5 |

**Q2 Fill in the blanks**

$\frac{1}{2} \times 20 = 10$

1. -----includes all of those processes by which an animal takes in digest, absorbs, stores, and uses food (nutrients) to meet its metabolic needs.
2. In amphibians the cortical changes result in the formation of a -----on the egg, opposite to the point of sperm penetration.
3. Leeches and some insect larvae exhibit -----movement.
4. Pheromones are-----that affect the behavior of another individual of the same species.
5. -----occur when an animal is one sex during one phase of its life cycle and the opposite sex during another phase.
6. A -----consist of one motor nerve fibers and all the muscle fibers with which it communicates.
7. The gallbladder stores the greenish fluid called-----.
8. Heat generation by shivering is called -----.
9. The controlling center for ovulation and menstruation is the -----.
10. -----respond to mechanically induced changes.
11. All photoreceptors possess light sensitive pigments. These pigments are -----.
12. The -----is the external covering of an animal.
13. The ----- of echinoderm provides a unique mean of locomotion.
14. The functional unit of a muscle myofibril is the -----.
15. Baleen plates are present in -----.
16. In a chemical synapse two cells communicate by means of a chemical agent called a -----.
17. Flatworm's nervous system contains -----.
18. The endocrine system of a crustaceans, such as crayfish controls functions such as----- and color change.
19. All vertebrates have a ----- circulatory system.
20. The outer protective covering of heart is -----.