



# UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – I Annual Exam – 2019

Subject: Zoology-I

Paper: A (Principles in Animal Life)

Time: 1 Hr. Marks: 20

Roll No. in Fig. ....

Roll No. in Words. ....

Signature of Supdt. ....

**Attempt this Paper on this Question Sheet only.**

**Division of marks is given in front of each question.**

**This Paper will be collected back after expiry of time limit mentioned above.**

## Q. I. Multiple choice questions (Tick mark the right answer)

0.5×20=10

- Study of animals is known as  
a. Zoology      b. Botany      c. Parasitology      d. Molecular Biology
- Which of the following molecule carries genetic code for all proteins that make up the life.  
a. RNA      b. Lipids      c. DNA      d. Carbohydrates
- Paleontology is the study of  
a. Development      b. Cell      c. Classification      d. Fossils
- An atom has two main parts, central nucleus and surrounding cloud contains  
a. Neutrons      b. Electrons      c. Protons      d. All of the above
- When an atom either gains or loses it acquires an electrical charge and is called a/an  
a. Ion      b. Molecule      c. Compound      d. None of the above
- Which of the following atom must be present in Organic molecules  
a. Oxygen      b. Carbon      c. Nitrogen      d. Sulphur
- Which of the following is/are disaccharides  
a. Sucrose      b. Lactose      c. Maltose      d. All of the above
- Steroids are naturally occurring lipid soluble molecules composed of how many carbon rings.  
a. 3      b. 2      c. 4      d. 5
- The outer most layer in animal cell is  
a. Cell wall      b. Cell envelope      c. Plasma Membrane      d. Endoplasmic reticulum
- Diffusion of water across a selectively permeable membrane from an area of higher conc. To an area of lower conc. is  
a. Lysis      b. Osmosis      c. Diffusion      d. endocytosis
- Adipose tissue is a type of loose connective tissue that consists of large cells that store  
a. Carbohydrates      b. Protein      c. Lipids      d. Nucleic acids
- The substance that accelerates the rate of a chemical reaction by decreasing the activation energy without itself being used up in the reaction is called as  
a. Catalyst      b. Enzyme      c. Substrate      d. Co-enzyme
- NAD<sup>+</sup> is made from vitamin  
a. C      b. D      c. B      d. A
- The breakdown of the end product of glycolysis in the absence of oxygen is referred as  
a. Fermentation      b. Aerobic respiration      c. Digestion      d. ETC
- Eukaryotic cells obtain a net gain of how many ATPs from the breakdown of each glucose molecule.  
a. 32      b. 34      c. 38      d. 36
- Each NADH is processed to produce how many ATPs  
a. 3      b. 2      c. 4      d. 6
- A disc of protein is attached with centromere which is called  
a. Karyokinesis      b. Kinetochore      c. Cytokinesis      d. cytokines
- Darwin spent 5 weeks on the  
a. Hawaii Island      b. Carrabin Islands      c. Galapagos islands      d. Greenland
- In finches, the formation of new forms from ancestral species is an example of  
a. Divergence      b. Convergence      c. Adaptive radiation      d. Natural selection
- Individuals of the same species that occupy a given area at the same time and share a unique set of genes is referred as  
a. Population      b. Community      c. Species      d. Super species

P.T.O.

Q. 2. Write the precise answer in the blanks provided

0.5×20=10

1. The geological period with warm and stable climate and high reptilian diversity was \_\_\_\_\_.
2. The study of tissues is referred as \_\_\_\_\_.
3. Different forms of element with same atomic number but different atomic masses are \_\_\_\_\_.
4. The process by which plasma membrane enclosed small amounts of fluid droplets is known as \_\_\_\_\_.
5. In hypertonic solution, the solute concentration is \_\_\_\_\_ outside the cell than inside.
6. \_\_\_\_\_ is the only non-membrane bound cell organelle found in eukaryotes.
7. \_\_\_\_\_ is a hard yet flexible tissue that supports the structures like outer ear.
8. A non-protein, organic molecule that participates in enzyme-catalyzed reaction often by transporting electrons is known as \_\_\_\_\_.
9. \_\_\_\_\_ are the changes in the structure of the genes and chromosomes.
10. Parapatric speciation occurs in small, local populations called \_\_\_\_\_.
11. The study of evolution of social behavior is called as \_\_\_\_\_.
12. In \_\_\_\_\_, the animal leaves while carrying out certain searching actions, such as walking and moving about.
13. Chemicals that are synthesized by one organism and that affect the behavior of another member of the same species are called \_\_\_\_\_.
14. \_\_\_\_\_ is a time of decreased metabolism and lowered body temperature in daily activity cycle.
15. An animal's \_\_\_\_\_ includes all living and non-living characteristics of the area in which the animal lives.
16. \_\_\_\_\_ are animals that feed by killing and eating other organisms.
17. The grasslands of North America are called \_\_\_\_\_.
18. Variety of living organisms in an ecosystem is called \_\_\_\_\_.
19. The total amount of energy that producers fix is called \_\_\_\_\_ primary productivity.
20. During \_\_\_\_\_, a young animal develops an attachment toward another animal or object.



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**Part - I**

**For Part-I Time Allowed: 1hr & Max. Marks: 20**

**Q. 1. Multiple choice questions (Tick mark the right answer)**  
**0.5×20=10**

- 1. Paleontology is a direct source of evidence of evolution because \_\_\_\_\_.**  
a. it is the study of structures in animals that have descended from common ancestors.  
b. it is the study of how animals have adapted to similar environments.  
c. it is the study of the distribution of animals around the world.  
d. it is the study of plant or animal remains or impressions that have been incorporated into the earth's crust.
- 2. In an experiment, the \_\_\_\_\_ serves as a basis for comparing data derived from the experiment.**  
a. theory  
b. hypothesis  
c. observation  
d. control
- 3. The atomic mass of an element is equal to the number of \_\_\_\_\_ and \_\_\_\_\_ in the nucleus of one of its atoms.**  
a. neutrons and protons  
b. protons and electrons  
c. electrons and neutrons  
d. isotopes and neutrons
- 4. \_\_\_\_\_ are the non-membrane bound structures that are the sites for protein synthesis.**  
a. Centrioles  
b. Lysosomes  
c. Ribosomes  
d. Vacuoles
- 5. The total of all the chemical reactions occurring in a cell is termed \_\_\_\_\_.**  
a. metabolism.  
b. catabolism.  
c. metabolism.  
d. kinetic energy
- 6. The Krebs cycle generates \_\_\_\_\_ NADHs.**  
a. 2  
b. 4  
c. 6  
d. 8
- 7. The period from the time a cell is produced until it completes mitosis is called the \_\_\_\_\_.**  
a. mitotic phase  
b. cell cycle  
c. cytokinesis phase  
d. G1 phase
- 8. An association of DNA and histone proteins is responsible for packaging DNA into chromosomes. This combination is called a(n) \_\_\_\_\_.**  
a. autosome  
b. histone  
c. heterosome  
d. nucleosome
- 9. Which of the following are pyrimidine bases found in RNA.**  
a. adenine and guanine  
b. cytosine and thymine  
c. adenine and uracil  
d. cytosine and uracil
- 10. The study of the movement of crustal plates during continental drift is called \_\_\_\_\_.**  
a. historical geology  
b. biogeography  
c. anthropology  
d. plate tectonics
- 11. When a geographical barrier divides members of a population, \_\_\_\_\_ speciation may occur.**  
a. sympatric  
b. allopatric  
c. stabilizing  
d. directional
- 12. Natural selection that narrows the phenotypic range by selecting against phenotypic extremes is called \_\_\_\_\_.**  
a. disruptive selection  
b. stabilizing selection.  
c. directional selection  
d. neutral selection
- 13. \_\_\_\_\_ emphasizes the ecological aspects of animal behavior involved with predator-prey interactions, foraging strategies, and habitat selection.**  
a. comparative psychology  
b. ethology  
c. behavioral ecology  
d. sociobiology
- 14. Causation in animal behavior that occurs on an evolutionary time scale is a/an \_\_\_\_\_ cause.**  
a. ultimate  
b. proximate.  
c. ethological  
d. anthropomorphic

15. For an aquatic animal, the amount of oxygen dissolved in the water may determine where the animal can live. For this animal, dissolved oxygen is a/an \_\_\_\_\_.
- tolerance factor
  - acclimator
  - limiting factor
  - optimum factor
16. For an aquatic animal, the range of values for dissolved oxygen that will support life is called the \_\_\_\_\_.
- range of optimum.
  - tolerance range.
  - existence range.
  - home range.
17. Nitrogen in nitrites and nitrates can be returned to the air as gaseous nitrogen by \_\_\_\_\_.
- nitrogen-fixing bacteria
  - nitrification of ammonia
  - chemolithoautotrophy
  - denitrifying bacteria
18. The nonliving reservoir for elements such as sulfur, phosphorus, and calcium is/are \_\_\_\_\_.
- the atmosphere
  - bones
  - ocean water
  - the earth
19. Enzyme activity can be affected by \_\_\_\_\_.
- temperature.
  - pH.
  - substrate concentration.
  - all of the above (a-c)
20. If a substance can be broken down into two or more chemical elements, it is a \_\_\_\_\_.
- mixture.
  - solution.
  - element.
  - compound.

0.5 × 20 = 10

**Q. 2. Write the precise answer in the blanks provided**

- The wings of a bird and an insect are \_\_\_\_\_.
- \_\_\_\_\_ is an electrolyte (Salt).
- The key element in all organic molecules is \_\_\_\_\_.
- \_\_\_\_\_ are the non-membrane bound structures that are the sites for protein synthesis.
- \_\_\_\_\_ lower the amount of energy required to initiate a chemical reaction.
- Which of the following occurs in the cytoplasm?
- The mitotic spindle disassembles during what phase of mitosis?
- Which of the following enzymes plays a central role in the control of the cell cycle?
- The era of modern genetics began with the rediscovery of the works of \_\_\_\_\_ in 1900.
- The discovery that genes occur on chromosomes was made by \_\_\_\_\_.
- The \_\_\_\_\_ carries amino acids to the ribosome where a polypeptide is assembled.
- DNA replication is said to be because \_\_\_\_\_ as it results in two DNA molecules, each consisting of one new and one parental strand.
- According to Charles Darwin, evolution is \_\_\_\_\_.
- As continents move apart, new crustal material is thrust up from the ocean floor in the Atlantic ocean, and old crustal material sinks into the earth in oceanic trenches of the \_\_\_\_\_ Ocean.
- A change in the frequency of alleles in a population is a definition of \_\_\_\_\_.
- The addition or deletion of one or more chromosomes in a chromosome set is called \_\_\_\_\_.
- Concentration of matter in tissues of animals at higher trophic levels in an ecosystem refers to \_\_\_\_\_.
- A symbiotic relationship in which one member of a relationship benefits and the second member is neither helped nor harmed is \_\_\_\_\_.
- The population size a particular environment can support is called the environment's \_\_\_\_\_.
- A bird watcher found that squirrels initially ran from a bird feeder when she rapped on the window. Over time, the squirrels were less apt to be chased from the feeder by this stimulus. This squirrel behavior illustrates a kind of learning called \_\_\_\_\_.



**ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED**

## Part -II (Subjective Type)

Attempt any THREE questions of the Following:

3+3+3

- Q. 3. Attempt any three questions out of following
- Describe the posttranslational modifications of proteins.
  - Write a note on Spermatogenesis.
  - Write a note on the variation in chromosome structure.
  - Write a note on functions of cell membrane.
  - Write a note on Coenzymes.

## Part -III

Attempt any ONE question:

- Q.4 Define karyokinesis. Explain phases of Mitosis. 6
- Q.5 Give a comprehensive account of metabolism of fats and proteins as alternative food molecules. 6



# UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part – I Annual Exam – 2019

Subject: Zoology-I

Paper: B (Invertebrates Diversity)

Time: 1 Hr. Marks: 20

Roll No. in Fig. ....

Roll No. in Words. ....

Signature of Supdt.:

**Attempt this Paper on this Question Sheet only.**

**Please encircle the correct option. Division of marks is given in front of each question.**

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- Q.1. Tick ( ) the correct option from the MCQs given below: 1/2x 20 =10
- The species count in phylum Platyhelminthes are nearly  
a. 34,000 b. 32,000 c. 26,000 d. 20,000.
  - Trypanosoma brucei* is a parasite which belong to class:  
a. Monogenea b. Phytomastigophora c. Rhizopoda d. Zoomastigophora
  - Mutualism is symbiotic relationship in which both species are in:  
a. Lose b. Benefit c. no loss no gain d. Harmed
  - The number of species in Super class Rhizopoda are about  
a. 2000 Species b. 3000 Species c. 4000 Species d. 5000 Species.
  - Organism believed to have had separate origin are said to be:  
a. Monophyletic b. Polyphyletic c. Triphyletic d. a & b
  - Diploblastic organisms have the body parts organized into layers derived from:  
a. one embryonic layer b. 2 embryonic layers c. 3 embryonic layers d. 4 embryonic layers
  - The number of species in Phylum Ciliophora are about  
a. 7000 Species b. 9000 Species c. 8000 Species d. 6000 Species
  - The members of Eubacteria are:  
a. True bacteria b. false bacteria c. multicellular organism d. decomposer
  - The study of diversity of organism and evolutionary relationship among them is termed as:  
a. Systemic b. Classification c. Arrangement d. Nomenclature
  - The Phylum Microspora has nearly species:  
a. 1000 species b. 850 Species c. 650 Species d. 450 Species
  - Members of class Demospongiae are sponges which have:  
a. Dull colour b. Bright colour c. Red colour d. blue colour
  - The Phylum Myxozoa consist of about  
a. 1500 Species b. 1250 Species c. 1000 Species d. 800 Species
  - In *Diphyllabothrium* species scolex is organ used as:  
a. holdfast b. movement c. defense d. food intake
  - The spicules in class Hexactinellida are composed of  
a. Calcium b. sand c. silica d.  $\text{CaCO}_3$
  - Octopuses are:  
a. Sedentary animals b. sessile c. Active animals d. Slow moving animals
  - The Members of class polychaeta are:  
a. Freshwater b. Marine c. terrestrial d. both a & b
  16. The two convex halves of the shell are called:  
a. Valves b. Parts c. Portions d. portions
  18. Super Class Actinopoda have about  
a. 1000 Species b. 2000 Species c. 3000 Species d. 4000 Species

P.T.O.

19. The living species of Phylum Mollusca include nearly:  
 a. 200,000 species. b. 100,000 species. c. 150,000 species. d. 250,000 Species
20. In class Calcarea the spicules are composed of:  
 a. Calcium b. Calcium carbonate c. Calcium sulphate d. Calcium bicarbonate

**Q.2 Fill in the blanks**

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

1. The Primitive gastropod possessed ----- nephridia
2. The Trochophore larva develops into another larva called -----larva
3. The most oldest part of the shell of bivalvia is called -----
4. The measurement of Trochophore larva -----mm
5. The Glochidium larva of freshwater clam measures up to -----mm
6. The Class gastropoda occupy a wide variety of freshwater, marine and -----habitat
7. The Leech belong to class-----
8. The exoskeleton is also called as -----
9. Almost all gastropod have flattened foot that is -----
10. The -----is included in class merostomata
11. Sea urchin is specialized for life in -----
12. The shell shape in ancestral cephalopod is probably -----.
13. The Cuttle fish shell is called -----bone.
14. The squid has a shell reduced to an internal chitinous structure called the -----
15. The *Amoeba* belong to super class-----
16. Gastropoda feed by scraping algae using their -----
17. The mental cavity is always involved in -----
18. The gastropod has an -----circulatory system.
19. The lobsters belong to the largest crustacean order -----
20. Every type of individual in an insect colony is called as a -----



# UNIVERSITY OF THE PUNJAB

B.A. / B.Sc. Part - I Annual Exam - 2019

Subject: Zoology-I

Paper: B (Invertebrates Diversity)

Time: 1 Hr. Marks: 20

Roll No. in Fig. ....

Roll No. in Words.....

Signature of Supdt.:

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Q.1: Tick (✓) the correct option from MCQs given below: 1/2 x 20=10

- All animal phyla living today were present about ----year ago:  
a. 550                      b. 600                      c. 500                      d. 450
- The animal kingdom is subdivided into Mesozoa, Parazoa and Eumetazoa. The groups are called:  
a. branches                      b. Phylum                      c. Subphylum                      d. Series
- The symbiotic relationship in which one partner is benefitted and the other is neither benefitted nor harmed is called:  
a. mutualism                      b. commensalism  
c. parasitism                      d. All of these
- Toxoplasma* and *Plasmodium* belong to phylum:  
a. Ciliophora                      b. Apicomplexa  
c. Myxozoa                      d. Phytomastigophora
- Most of the protozoologists divide subkingdom protozoa into.....phyla:  
a. 7                      b. 6                      c. 5                      d. 8
- In some protozoa, the regular arrangement of microtubules that gives shape is called:  
a. Pellicle                      b. Plasmalemma  
c. Plasmodesma                      d. Rhizopodium
- Which of the followings is an example of fresh water shelled amoebae:  
a. Arcella                      b. Blantidium                      c. Monocystis                      d. Vorticella
- Nosema bombix* causes a disease in silkworms called:  
a. pebrine                      b. zoonosis                      c. foul brood                      d. silk cholera
- Which of the followings causes chronic diarrhea:  
a. *Cryptosporidium*                      b. *Toxoplasma*                      c. *Entamoeba*                      d. *Giardia*
- Obelia belongs to class:  
a. Scyphozoa                      b. Hydrozoa                      c. Anthozoa                      d. Cubozoa
- Flatworms belong to phylum:  
a. Aschelminthes                      b. Platyhelminthes                      c. Ctenophora                      d. Annelida
- The innermost layer in the body of flatworms is known as:  
a. ectoderm                      b. mesoderm                      c. gastroderm                      d. mesoglea
- In the body of trematoda, the epidermis consisting of syncytium is named as:  
a. tegument                      b. epithelium                      c. endothelium                      d. glycocalyx
- The bladder worm grows in..... of cattle:  
a. skeletal muscles                      b. intestinal muscles                      c. brain                      d. spinal cord
- The major unifying Aschelminthes feature is:  
a. blastocoel                      b. pseudocoelom                      c. coelom                      d. both "b" & "c"
- The complete digestive system with mouth, digestive glands and anus evolved first in:  
a. Platyhelminthes                      b. Aschelminthes                      c. Annelida                      d. Mollusca

P.T.O.



17. The vector of *Trypanosoma* is:

- a. Anopheles mosquito
- b. Tsetse fly
- c. Snail
- d. Aedes mosquito

18. The only living cephalopod that possesses external shell is:

- a. Nautilus
- b. Mytilus
- c. Cuttle fish
- d. Snails

19. In class Polychaeta the first segment is called:

- a. prostomium
- b. peristomium
- c. stomium
- d. labium

20. Mites and ticks are the members of class:

- a. Insecta
- b. Myriapoda
- c. Crustacea
- d. Arachnida

Q.2 Fill in the blanks:

1/2 × 20 = 10

1. Members of Ctenophora are also called \_\_\_\_\_.
2. The fluid in the pseudocoelom of rotifers provides \_\_\_\_\_ supports.
3. Sea urchin belongs to Phylum \_\_\_\_\_.
4. Sleeping sickness is caused by sporozoan genus \_\_\_\_\_.
5. Water enters a sycon sponge through openings called \_\_\_\_\_.
6. A hard capsule called \_\_\_\_\_ encloses many turbellarian eggs.
7. \_\_\_\_\_ groups have members that can be traced to a separate ancestors.
8. Kingdom Protista arised about \_\_\_\_\_ million years ago.
9. The body of tapeworm consists of \_\_\_\_\_, neck and stoblia.
10. Members of the class gastropoda are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
11. \_\_\_\_\_ is causative agent of malaria.
12. Cnidocytes produce \_\_\_\_\_ that discharge on a stimulation of a cnidocil.
13. Thin, flat cells, called \_\_\_\_\_ line the outer surface of sponge.
14. The gastrodermis of all cnidarians lines a blind ending called \_\_\_\_\_ cavity.
15. Hydra is a common \_\_\_\_\_ hydrozoans.
16. Ctenophorans have adhesive cells called \_\_\_\_\_ that capture prey.
17. *Fasciola hepatica* is called \_\_\_\_\_.
18. Proglottids contain a complete set of \_\_\_\_\_ structures in tapeworms.
19. Members of Class Scaphopoda are called \_\_\_\_\_.
20. \_\_\_\_\_ is a 180°, counter clockwise twisting of visceral mass and mantle cavity.