

**Bago University**  
**Department of Zoology**  
**Second Semester Examination, September 2019**

**First Year (B.Sc)**  
**(Zoology Specialization)**  
**Answer ALL questions**

**Zool. 1102**  
**Life processes and Homeostasis**  
**Time Allowed: (3) Hours**

**I. State TRUE or FALSE to the following statements. (10 marks)**

1. Inorganic compounds are immensely important in living things.
2. Sucrose is formed by the union of glucose and galactose.
3. The shape of a protein molecule is directly related to its function.
4. Most animals lack the enzymes necessary to digest cellulose.
5. The liver is the largest internal organ of the body.
6. A vaccine is a preparation of killed disease bacteria or viruses.
7. Crocodiles have a completely divided pulmonary and systematic circulation.
8. The kangaroo rat gains all of its water from its food.
9. Desert lizards are endotherms.
10. The large desert ungulates can escape the desert heat by living in burrows.

**II. Complete the following statements with appropriate words. (10 marks)**

1. Some sugars contain nitrogen: they are called ----- sugars.
2. Proteins play a vital role in the formation of ----- in organisms.
3. All amino acids have the same ----- structure.
4. The bile salts play a very important role in the digestion of -----.
5. Neural and hormonal reflexes regulate the activity of the ----- system.
6. Cellular ----- is a series of chemical reactions that captures energy in molecules of ATP.
7. The smaller desert mammals are mostly fossorial or -----.
8. Death occurs at a body temperature and metabolism -----.
9. Most marine invertebrates are in osmotic ----- with their seawater environment.
10. Endothermy is energetically -----.

**III. Answer ALL questions (10 marks)**

1. List the main nutrients needed in a man's diet.
2. Mention the nature of stomachs which are found in ruminants.
3. Describe the three hormones secreted by duodenum.
4. Explain the transport of carbon dioxide from the tissues to the lungs.
5. List the two major mechanisms used by cold environment mammals to maintain homeothermy.

**IV. Answer ALL questions (20 marks)**

1. Explain the pancreas and bile duct empty into the duodenum with diagram only.
2. State how antibodies in the plasma affect the bacteria or their products.
3. Write an interesting account on osmotic conformers for most marine invertebrates.
4. Explain the poikilothermic and homeothermic animal with example.

**V. Answer ANY THREE questions (30 marks)**

1. Draw a chart illustrating how one carbohydrate can be converted into another by condensation or hydrolysis.
2. Discuss as far as you can on the vertebrate digestive system.
3. Discuss about the steroids with general structure.
4. State briefly on essential nutrients.
5. Explain how the Krebs cycle takes place in the mitochondria of the cell.
6. Discuss as far as you can on 'infected wounds'.

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