



DEFENCE SERVICES MEDICAL ACADEMY

ENTRANCE EXAMINATION

BIOLOGY

ATTEMPT ALL QUESTIONS.
(Write down the answers on the answer book)

15.8.2014
Time allowed: 2 hours

SECTION (A) ZOOLOGY

1. State TRUE or FALSE to the following statements. Do not copy the statements.
(10 marks)

- i. The hepatic portal vein enters the kidney.
- ii. The Part behind the olfactory lobes is cerebral hemispheres.
- iii. Bile contains bile salts to emulsify protein.
- iv. Diastema is present in herbivores.
- v. The ribs move inward and the diaphragm becomes flattened when the thoracic cavity expands.
- vi. Plasma is a pale straw-coloured fluid.
- vii. Monocytes are non- motile.
- viii. A reflex arc involves three types of neurones.
- ix. Cervix connects the vagina to the uterus.
- x. Mutualism is one of the types of parasitism relationship.

2. Complete the following statements with appropriate. Do not copy the statements.
(10 marks)

- i. Carbon exists in the ----- crust as organic fossils.
- ii. Both common carotids pass up the neck and bifurcate near the angle of the ----- into external carotids.
- iii. Hydrochloric acid of gastric juice, ----- bacteria brought in with the food.
- iv. A true ----- diaphragm aids the efficiency of ventilation.
- v. A synapse is the junction between two -----.
- vi. Bile contains bile salts to emulsify fats and -----.
- vii. Ovaries of the female reproductive system produces ova at -----.
- viii. The hormone, -----, is carried in the lymph vessels in preference to the blood capillaries.
- ix. Carbon, nitrogen and -----cycles are included in an ecosystem.
- x. Digested fatty material absorbed by lacteals in the ----- of the small intestine are collected by the lymph system.

3. (a) State how to commensalism relationship between the whales and barnacles. (3 marks)
(b) Explain the nature of amnion associated with the human's embryo. (3 marks)
4. (a) Give a labeled diagram of the dorsal view of rabbit's brain. (5 marks)
(b) Describe the open root of teeth. (3 marks)
5. (a) Classify mammals and state what they include.
(b) Explain in detail about the general characters of mammals. (16 marks)

SECTION (B) BOTANY

6. State TRUE or FALSE to the following statements. Do not copy the statements. (10 marks)
- The aerial roots of banyan tree grow upwards until they strike the soil.
 - The sunflower is not a single flower.
 - The seeds of dehiscent fruits are scattered over a wide area when mature at the same time.
 - The maize grain is not a single-seeded fruit.
 - Oxygen is utilized and carbon dioxide is released during photosynthesis.
 - The process of both aerobic and anaerobic respiration takes place slowly.
 - Carbohydrates are transported out of the leaf in the form of glucose to the stem.
 - Hormones differ from vitamins and mineral as a class of growth.
 - Gametes are not essential in asexual reproduction.
 - Nitrification is the process of converting nitrogenous compounds into gaseous nitrogen.
7. Complete the following statements with appropriate. Do not copy the statements. (10 marks)
- The region between two successive nodes is the -----.
 - The function of the corolla are protection and -----.
 - Fleshy fruits provide ----- for animals and man.
 - A seed with one cotyledon is termed as -----seed.
 - Chloroplast is a ----- bound organelle containing chlorophyll and other pigments.
 - All the reactions of metabolism occur in -----.

- vii. In both plants and animals, chemical messages are carried by -----.
- viii. Both plants and animals reproduce sexually where ----- are required.
- ix. The nucleus is the ----- centre of the cell.
- x. Organisms that feed on dead organisms are termed as -----.

- 8. (a) With examples, explain what you understand of homogamy. (3 marks)
(b) Tabulate the structure and function of phloem as found in a leaf. (3 marks)

- 9. (a) Explain what you understand of phototropism with examples. (3 marks)
(b) Explain in detail about the mechanism for sex chromosome as found in man.
(5 marks)

- 10. (a) Define respiration and explain about the respiration that occurs in animals including man during strenuous exercise. (8 marks)
(b) List the plant hormones and explain about auxin and abscissin. . (8 marks)