

DEFENCE SERVICES MEDICAL ACADEMY

ENTRANCE EXAMINATION

BIOLOGY

ATTEMPT ALL QUESTIONS

21 - 8 - 2015.

(Write down the answers on the answer book)

Time allowed: (2) hours

SECTION (A) ZOOLOGY

1. State TRUE or FALSE to the following statements. Do not copy the statements.

(10 marks)

- i. Mutualism is one of the types of symbiotic relationship.
- ii. Diastema is present in carnivores.
- iii. The diaphragm is convex towards the abdomen when of rest.
- iv. Ovulation occurs once in about every 28 days.
- v. Parasitism benefits the parasite but harms the host.
- vi. Some serum globulins carry hormones and vitamins.
- vii. The physiological dead space is negligible during exercise.
- viii. The vestibule opens at the vulva in the male rabbit.
- ix. Protein is one of the requirements in a balanced diet.
- x. Plasma is a pale straw-coloured fluid.

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

- i. Plasma proteins maintain viscosity of the
- ii. The rabbit's heart lies within the pericardial
- iii. The presence of a true diaphragm helps the efficiency of ventilation.
- iv. Marsupials do not lay
- v. Diet is the we eat every day.
- vi. Adrenal medulla produces the adrenaline
- vii. Mammals with are called marsupial.
- viii. A - like membrane around the embryo is the amnion.
- ix. Lymphatic have thin walls with
- x. Saliva contains amylase, mucus and

3. (a) Compare the egg and sperm based on numbers produced. (4 marks)
(b) Give the names of four elements chiefly composed in living organisms of ecosystem. (2 marks)
4. (a) State the vertebral column of rabbit in detail. (6 marks)
(b) State what you understand of an axon. (2 marks)
5. Describe the male reproductive system of rabbit with the help of a labeled diagram. (16 marks)

SECTION (B) BOTANY

6. **State TRUE or FALSE to the following statements. Do not copy the statements. (10 marks)**
 - i. Plants which have soft stems are all termed as herbs.
 - ii. The fragrance of flower is due to the presence of essential oils in the sepals.
 - iii. Fruits are generally classified into two groups.
 - iv. Cotyledon is a separate tissue that store food for growing embryo.
 - v. During photosynthesis, the glucose is stored permanently as starch in leaves.
 - vi. Respiration is the release of chemical energy when food is broken down in living cells.
 - vii. Water reacts with carbon dioxide during photosynthesis.
 - viii. Electrical messages are carried along nerves in plants.
 - ix. Both plants and animals can reproduce asexually without the need of gametes.
 - x. Carnivores are secondary consumers.
7. **Complete the following statements with appropriate words. Do not copy the statements. (10 marks)**
 - i. The flower is highly specialized branch modified for-----.
 - ii. Corolla is the most ----- part of a flower.
 - iii. The pericarp of ----- fruits splits open by force.

- iv. Some dicotyledonous seeds without endosperm store food in the -----
- v. Four requirements for photosynthesis are chlorophyll, -----, carbondioxide and water.
- vi. The absorption of water from the soil by the root can be done by -----.
- vii. Plants respond to chemical messages by ----- growth.
- viii. Plants and animals reproduce asexually without the need for -----.
- ix. Within the nucleus, there are masses of ----- called chromatin.
- x. The places where organisms live are termed as -----.
8. (a) State the economic importance of leaves. (3 marks)
- (b) State the purpose of water acting as reactant. (3 marks)
9. (a) State what you understand of photosynthesis. (3 marks)
- (b) State about the function of stems. (5 marks)
10. (a) List the requirements in the process of photosynthesis and explain about on investigation to show the necessity of chlorophyll and carbondioxide for photosynthesis. (8 marks)
- (b) Give an explanation on aerobic respiration and anaerobic respiration that takes place in yeast together with relevant equation. (8 marks)