



DEFENCE SERVICES MEDICAL ACADEMY
ENTRANCE EXAMINATION
BIOLOGY

ATTEMPT ALL QUESTIONS

18 - 8 - 2017.

(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. Two small ovaries of the female reproductive system of the rabbit are attached behind the kidneys to the dorsal abdominal wall.
 - ii. The three venae cavae open directly into the right auricle of rabbit's heart.
 - iii. The right auricle opens into the left ventricle in the heart of rabbit.
 - iv. Eating and drinking are termed as ingestion.
 - v. Cornea in the human eye is for the refraction of light.
 - vi. Thrombocytes provide the substance needed for the clotting of blood.
 - vii. Umbilical cord connects the embryo's body to the placenta.
 - viii. Water vapour gather together condenses in a cool atmosphere to form a rain.
 - ix. In a commensal relationship all species benefits.
 - x. The atmosphere contains 78% hydrogen.
2. **Complete the following statements with appropriate words. Do not copy the statements.**
(10 marks)
- i. The part of rabbit's brain which lies in front of the optic lobes is called -----.
 - ii. Coeliac artery supplied blood to liver, stomach and -----.
 - iii. The appendicular skeleton consists of the ----- and the bones of the limbs.
 - iv. Carbohydrates and fats supply the energy ----- for living organisms.
 - v. Flexors pull two parts of the limbs ----- each other.
 - vi. White blood corpuscles are termed as -----.
 - vii. The nuclei of both egg and sperm contain thread-like structures called -----.
 - viii. Nitrites in soil are converted to nitrates by the nitrifying bacteria ----- living in the soil.
 - ix. Carbon exists in the earth's crust as -----fossils.
 - x. Epiphytes grow in the ----- of trees.

3. (a) Explain transport in large invertebrates and vertebrates. **(3 marks)**
 (b) State what occurs at the time of labour in the uterus of a pregnant woman. **(3 marks)**
4. (a) State how concentration of the muscular gut wall increase the chemical digestion mentioning when absorption of food is enhanced. **(4 marks)**
 (b) Enumerate and state the functions of sensory, motor and intermediate neurones as found in mammals. **(4 marks)**
5. (a) Give a fully labeled diagram to show the longitudinal section of the rabbit's kidney and state the nature of the collecting duct. **(8 marks)**
 (b) Explain how two stages of respiration as they occur during gaseous exchange in mammals with the role of true muscular diaphragm. **(8 marks)**

SECTION (B) BOTANY

6. State TRUE or FALSE to the following statements. Do not copy the statements. **(10 marks)**
- Adventitious type of the roots are equal in size.
 - The florets in the centre of sunflower are disc florets.
 - The seeds of Ye-pyut-pin are dispersed by wind.
 - In maize grain, the micropyle lies at the top of the grain.
 - The release of carbondioxide is an indication of photosynthesis.
 - Aerobic respiration is the breakdown of glucose into energy in the absence of oxygen.
 - Carbohydrates are transported out of the leaf in the form of sucrose to the stem.
 - The main effect of cytokinin is to increase the rate of cell division.
 - Plants and animals can reproduce both asexually or sexually.
 - Herbivores are primary consumers.
7. Complete the following statements with appropriate words. Do not copy the statements. **(10 marks)**
- The leaves of many plant provide -----.
 - The function of the corolla are protection and -----.
 - Three groups of fruits are simple, ----- and composite.
 - A small pore at one end of the hilum is the -----.
 - Plants get the materials required for photosynthesis from their -----.
 - The absorption of water from the soil by the root can be done by -----.
 - Plants respond to light, gravity, ----- and water.
 - Asexual reproduction also known as vegetative ----- is common in plants.

- ix. DNA with the help of RNA, controls ----- synthesis within the cytoplasm.
- x. Pollution in the ----- affects both animals and plants.

- 8. (a) List and state the functions of roots. **(3 marks)**
(b) State the nature of vegetative propagation. **(3 marks)**
- 9. (a) Explain the importance of nitrogen in mineral nutrition of plants. **(3 marks)**
(b) Describe the process of photosynthesis. **(5 marks)**
- 10. (a) Give an equation to summarize the process of photosynthesis and state the steps involved in starch test. **(8 marks)**
(b) Explain in detail about asexual reproduction in plants. **(8 marks)**