



DEFENCE SERVICES MEDICAL ACADEMY
ENTRANCE EXAMINATION
BIOLOGY

ATTEMPT ALL QUESTIONS

19 – 8 – 2016.

(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. The cavity of the medulla is the fourth ventricle in rabbit.
- ii. Fibres act as roughage for the body.
- iii. Egestion is the elimination of digested materials from the gut.
- iv. Alveoli of the lungs are fully stretched at the end of inspiration.
- v. High carbon dioxide concentration in the blood is removed by faster breathing.
- vi. Lymphatics are like veins consist of swellings and the lymph node .
- vii. Neurones are nerve cells.
- viii. Oviduct leads mature eggs to the uterus.
- ix. Parasite species occur only in plants.
- x. Fuel, when burned, releases carbon into the atmosphere.

2. Complete the following statements with appropriate words. Do not copy the statements.

(10 marks)

- i. The visceral motor fibres make up the ----- nervous system.
- ii. The period between fertilization and ----- is called gestation.
- iii. Impulses from the respiratory ----- centres in the medulla oblongata of the hindbrain.
- iv. Diet is the food we ----- every day.
- v. *Platyhelminthes* with ----- bodies of invertebrate animals.
- vi. The receptor organ receives the stimulus and ----- an impulse.
- vii. Holozoic nutrition is the ----- of solid organic food.
- viii. Closed root firmly embeds the tooth in the -----.
- ix. Formation of red blood corpuscles takes place in the red bone -----.
- x. The roots of the orchids obtain ----- and water from the air.

3. (a) Give names “the stages of respiration” and “the types of dead spaces” and mentioning “the parts include in each type of dead spaces” of the gaseous exchange in mammals. (3 marks)
- (b) State the effects of lack of hormone insulin in man. (3 marks)
4. (a) Describe the nature of lymph system. (4 marks)
- (b) Name the includes that occur in the water cycle mentioning how a cloud is formed. (4 marks)
5. Tabulate the parts together with their location and prominent features of the rabbit’s brain. (16 marks)

SECTION (B) BOTANY

6. State TRUE or FALSE to the following statements. Do not copy the statements. (10 marks)
- i. A tuber is the swollen tip of a special underground root.
 - ii. At the time of pollination, the stigma is viscous with a sticky substance.
 - iii. Dispersal of seeds is carried out only by wind.
 - iv. Most seeds germinate by either of two methods, epicotyl and hypocotyl.
 - v. The structure of xylem is cylindrical, thin-walled cells with cytoplasm.
 - vi. The amount of energy released is relatively small in the process of anaerobic respiration.
 - vii. Transpiration stream carries mineral salts from the roots to the leaves.
 - viii. Cytokinin interacts with auxin in the growth and development of plants.
 - ix. At the end of meiosis, the megaspore mother cell gives four functional megaspores.
 - x. Pollution affects some portion of the earth.
7. Complete the following statements with appropriate words. Do not copy the statements. (10 marks)
- i. Non-green plants lacking ----- cannot manufacture their own food.
 - ii. Cross-pollination brought about by animals is termed as -----.
 - iii. Dispersal of seeds avoids ----- and competition for light and nutrients.

- iv. Germination is the series of changes occurring in an ----- and resulting in a seedling.
 - v. Leaf is composed of ----- for carries water and minerals absorbed by roots to leaves.
 - vi. The absorption of water from the ----- by the root can be done by osmosis.
 - vii. Shoots curve towards light, they are positively -----.
 - viii. The ovule now matures and becomes a -----.
 - ix. Normal males are chromosomally XY and females are -----.
 - x. The widespread use of chemical pesticides and weed-killers cause -----.
8. (a) Name the outer and inner seed-coats of a bean seed and state how the seed-coats function. (3 marks)
- (b) State the condition of chromosome as found in mitosis and meiosis cell division. (3 marks)
9. (a) Define the term transpiration. (3 marks)
- (b) Briefly state the second stage of germination as found in a bean seed. (5 marks)
10. (a) Describe in detail about gene, chromosomes and mutation. (8 marks)
- (b) Mention precisely the process of megagametophyte, microgametophyte and double fertilization during the seed formation in plants. (8 marks)