



DEFENCE SERVICES MEDICAL ACADEMY
ENTRANCE EXAMINATION

BIOLOGY

ATTEMPT ALL QUESTIONS

16 - 8 - 2019.

(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. Obesity is the result of excess food.
- ii. Red blood corpuscles are termed as leucocytes.
- iii. A reflex arc involves three neurones.
- iv. The zygote formed after fertilization divides continuously into a ball of cells called embryo.
- v. Symbiotic relationships are close relationships between two of the same species.
- vi. In *Paramecium*, undigestible residues in the vacuoles are egested at the cytostome.
- vii. *Paramecium* has one organelle to perform particular vital processes.
- viii. Blood is a fluid tissue composed of fluid plasma and cells suspended in it.
- ix. Scrotum is a sac in which a testis is located.
- x. Mutualism is one of the types of symbiotic relationships.

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

- i. A cell body of a consists of a nucleus and many dendrites.
- ii. Each eyeball of man is held in place in a socket in the skull by muscles.
- iii. The nervous system of mammals consists of central nervous system and a series of to link the system to all parts of the body.
- iv. Protozoans that inhabit the intestinal tract of termites digest
- v. Fungi and usually live together as lichens on rocks.
- vi. Swallowing is the moving of food from the mouth into
- vii. Fibres act as for the body.

- viii. Haemoglobin in combines with oxygen to form oxyhaemoglobin.
 - ix. Uterus is for the attachment and of the embryo.
 - x. Dentition is the and arrangement of the teeth in the skull.
3. (a) State the nature of a nerve and a synapse. (3 marks)
- (b) State the nature of commensal relationship.(Examples not essential). (3 marks)
4. (a) Compare the similarities and differences of lymphatics and veins. (4 marks)
- (b) Enumerate and explain lactation and maternal care. (4 marks)
5. (a) Give a labelled diagram of the digestive system of the rabbit and state the nature of the pancreas. (8 marks)
- (b) State what occurs at the end of inspiration and explain the formation of expiration process in lungs. (8 marks)

SECTION (B) BOTANY

6. State TRUE or FALSE to the following statements. Do not copy the statements. (10 marks)
- i. Axillary buds are also known as lateral buds.
 - ii. The ovary is the basal swollen part of the stamen in a flower.
 - iii. The coleoptile covers the radicle and coleorhiza covers the plumule.
 - iv. Photosynthesis is the process by which green plants use light energy to manufacture glucose.
 - v. ADP molecules are formed by an additions to ATP.
 - vi. Water makes up two third or more of living active protoplasm.
 - vii. Abscission is involved in leaf abscission.
 - viii. Runners have above ground horizontal stems.
 - ix. Phenotype is the genetic constitution of an organism.
 - x. Fuel when burned releases oxygen into the atmosphere.

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

- i. Timber obtained from ----- trunks of trees.
- ii. The flower is born on a short or long -----.
- iii. In a bean seed, the slender acute end of the embryo is the -----.
- iv. Chlorophyll absorbs light energy for the ----- change.
- v. The type of respiration in yeast is termed as ----- respiration.
- vi. Water from the soil travel upwards through the vessels of the -----.
- vii. Gravity induced ----- and water induced hydrotropism.
- viii. Plants and animals can reproduce sexually which does require -----.
- ix. Within the nucleus, there are masses of ----- called chromatin.
- x. Water cycle includes evaporation, ----- and precipitation.

8. (a) Give two reasons why dispersal of seeds is desirable. (3 marks)
- (b) Define the term phototropism. (3 marks)

9. (a) List the four stages of cell division and state what occur during interphase. (3 marks)
- (b) Provide a chart showing the classification of fruits and state the nature of composite fruits. (Diagram of composite fruit is not necessary) (5 marks)

10. (a) Describe the external structure of a bean seed supported by relevant diagrams. (8 marks)
- (b) Give precise explanation on sexual reproduction as found in plants. (8 marks)