



DEFENCE SERVICES MEDICAL ACADEMY

ENTRANCE EXAMINATION

BIOLOGY

ANSWER ALL QUESTIONS

16.8.2013

Time allowed:(2) hours

SECTION (A) ZOOLOGY

- 1. State TRUE or FALSE to the following statements. Do not copy the statements. (10 marks)**
- Rabbits live single in burrows.
 - The four legs of the rabbit have four digits.
 - Insufficient fibres in the diet cause obesity.
 - The blood receives a better oxygen supply by faster breathing.
 - Lymphocytes are non-motile.
 - Lymphatics have lymph nerves that are glandular in function.
 - The hormone adrenaline increases rate of heart beat.
 - Fission is a kind of asexually reproduction in animals.
 - Bottle-feeding ensures close contact between mother and baby.
 - The fungi provide moisture and dissolve minerals from the soil.
- 2. Complete the following statements with appropriate words. Do not copy the statements. (10 marks)**
- Lymphocytes concerned in the formation of ----- .
 - During expiration the diaphragm is ----- towards the thorax when at rest.
 - Most absorption occurs in ----- of small intestine.
 - use carbon dioxide during photosynthesis to form organic compounds within plants.
 - A thin ----- and a jelly coat surround the egg.
 - The typical vertebra has a solid ----- portion called the centrum.
 - Name the anatomical dead spaces are the mouth, ----- , trachea, bronchi and bronchioles.
 - In man and dog have the ----- of teeth type is closed.
 - Function of blind ----- is the point where nerve fibres lead to optic nerve.
 - The back of -----, provides as both a home and transportation for the attached barnacles.
- 3. (a) State the role of true muscular diaphragm as found in mammals.(3 marks)**
(b) State the nature of mutualism.(example not required) (3 marks)

4. (a) Give name the parts of dermis layer as found in human skin. (5 marks)
(b) Compare egg and sperm based on activity. (3 marks)
5. Answer the following parts of the rabbit. (16 marks)
- (a) Distinguish the nervous system.
(b) Describe the ventricles in the brain.
(c) Describe the cranial nerves.
(d) Describe the spinal nerves.

SECTION (B) BOTANY

6. State TRUE or FALSE to the following statements. Do not copy the statements. (10 marks)
- i. Angiosperms constitute the least conspicuous part of the earth vegetation.
ii. The wall of ovule grows to become the pericarp of the fruit.
iii. Respiration is the release of solar energy when glucose is broken down in living cells.
iv. The energy released is in the form of ATP stored in nucleus.
v. Translocation is the movement of dissolved substances through a plant.
vi. Gametes are not essential in asexual reproduction.
vii. Individual differences are called variation.
viii. Lactic acid is mildly poisonous chemical.
ix. Each ecosystem has particular set of physical factors.
x. Animal that feed on herbivores are termed as primary consumers.
7. Complete the following statements with appropriate words. Do not copy the statements. (10 marks)
- i. The nutrition of green plants is termed as ----- nutrition.
ii. Without ----- pressure, leaves and herbaceous plant stems would wilt.
iii. Palisade mesophyll cells contain numerous ----- .
iv. ----- of seeds avoids overcrowding and competition for light and nutrients.
v. Abscissin is antagonistic to ----- and cytokinin.
vi. The megaspore mother cell undergoes ----- to give one functional megaspore.

- vii. The number and size of the chromosomes in a cell are ----- characteristics of a particular species.
- viii. Decomposers break down the waste products and dead bodies of organisms into ----- form.
- ix. Nucleus consists of a nuclear membrane and semifluid ----- .
- x. Both members of the association benefit in ----- relationship.
8. (a) State the utilization of water as solvent.
- (b) Generally state the effects of pollution in the environment on organisms.
(6 marks)
9. Tabulate Xylem and phloem together with the respective structures and functions.
(8 marks)
10. Tabulate the stages of mitosis and state the importance of mitosis, meiosis I and II.
(16 marks)