

2016

MATRICULATION EXAMINATION

DEPARTMENT OF MYANMAR EXAMINATION

BIOLOGY

Time Allowed: (3) Hours

WRITE YOUR ANSWERS IN YOUR ANSWER BOOKLET.

DO NOT COPY THE QUESTIONS.

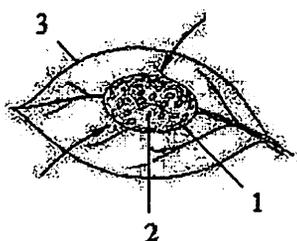
1. State **TRUE** or **FALSE** to the following statements. Do not copy the statements. (20 marks)
- i. A typical leaf consists of three main parts.
 - ii. The stem develops from the radicle of the embryo.
 - iii. The receptacle is more or less concave in hypogynous flowers.
 - iv. The pollen tube enters the ovule through the micropyle.
 - v. Dispersal of seeds prevents overcrowding and competition for light and nutrition.
 - vi. Seeds of cotton and kapok serve as a source of commercial oils.
 - vii. The two large cotyledons of maize grain are kidney-shaped.
 - viii. The bowl of Bowman's capsule contains a glomerulus.
 - ix. Urogenital opening is just posterior to the anus in *Lepus cuniculus*.
 - x. Carbon dioxide from the atmosphere diffuses into the leaves through stomata.
 - xi. Carnassials are large teeth in herbivores.
 - xii. Man can also respire anaerobically.
 - xiii. The forces pull the stream of water from the leaves to the roots is called transpiration pull.
 - xiv. Water makes up two-thirds or more of living active protoplasm.
 - xv. Adductor muscles pull the limbs outwards away from the body.
 - xvi. Shoots are negatively phototropic as they curve towards light.
 - xvii. The zygote divides continuously into a ball of cells called embryo.
 - xviii. The nucleus is the smallest organelle within the cell.
 - xix. The weaker individuals may die after being able to reproduce in nature.
 - xx. Herbivores are primary consumers in an ecosystem.

[P.T.O

2. Complete the following statements with appropriate words. Do not copy the statements. (20 marks)
- i. Region of cell division is also called ----- region.
 - ii. Plants, which live in water or in very wet soil are -----.
 - iii. Protection and ----- are the functions of corolla.
 - iv. The two polar nuclei fuse to form the ----- or secondary nucleus.
 - v. More than one fruitlet derived from the free ----- of the single flower is known as aggregate fruit.
 - vi. The embryo is embedded in the ----- of maize grain.
 - vii. Maize grain is a single seeded fruit called a -----.
 - viii. Skull of the mammals is with two ----- condyles.
 - ix. The typical vertebra has a solid oval portion called the -----.
 - x. Xylem carries water and minerals absorbed by ----- to leaves.
 - xi. Peristalsis moves ----- slowly through the alimentary canal.
 - xii. The energy produced by aerobic respiration is not used immediately but stored in the -----.
 - xiii. Aquatic organisms need less strong ----- than land organisms.
 - xiv. Plasma proteins include serum -----, serum globulins, and fibrinogen.
 - xv. The compound ----- in plants is important in the ripening of fruits.
 - xvi. Severe deficiency of the hormone ----- leads to cretinism in children.
 - xvii. Testes produce sperms from their coiled tubes and male sex hormone at -----.
 - xviii. A recessive characteristic can appear only if the genotype is -----.
 - xix. The term hybrid is synonymous with the ----- condition.
 - xx. Detergents reduce the ----- of freshwater.

3. Answer ALL questions. (12 marks)

- a. Name the outer and inner seed-coats of a bean seed and state how the seed-coat functions.
- b. Mention the arteries that supply blood to the fore limb, kidney, sex organs and tail of the rabbit.
- c. Provide labels and caption to the given diagram. (Do not copy the diagram.)



- d. List the activities that utilize the energy release from ATP.

OR

State the transport of salts as found in plant.

- e. Mention the nature of the plant hormone cytokinin.

OR

Compare egg and sperm based on activity.

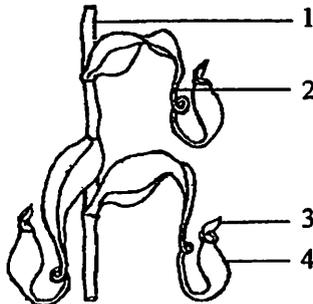
- f. State the role of nucleus is of primary importance.

OR

Describe the mutualistic relationship between fungi and cyanobacteria in lichens.

4. Answer **ANY FOUR** questions. (16 marks)

- a. Provide labels and caption to the given diagram and state how the leaves are modified in this plant mentioning the type of plants it belongs to. **(Do not copy the diagram.)**



- b. Mention the nature of the glands as found in male reproductive system and the formation of the uterus in the female reproductive system of rabbit.
- c. State why it is required to obtain sufficient quantity of proteins, vitamins, minerals and fibres in a balanced diet.

OR

Explain the setting of experiment to demonstrate anaerobic respiration in germination seeds. **(Illustration is not essential.)**

- d. State the nature of erythrocytes as found in mammals.

OR

Describe the function of retina of human eye.

- e. State the nature of placenta as found in the human's embryo.

OR

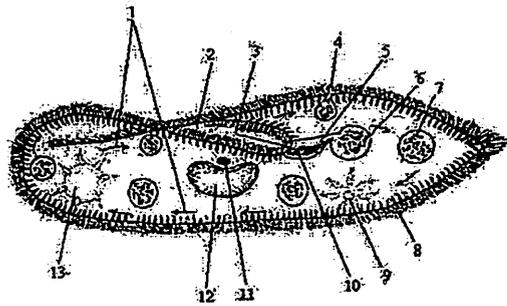
Tabulate the stages of mitosis together with their respective events.

OR

Describe the four main ways that can cause pollution in environments.

5. Answer ANY FOUR questions. (32 marks)

- a. Explain the changes after fertilization mentioning the nature of cultivated fruits that develop without fertilization.
- b. Give precise explanation on the spinal cord as found in the rabbit. **(Illustration is not essential.)**
- c. Provide labels and caption to the given diagram and state the route of the food vacuole as found in this animal. **(Do not copy the diagram.)**



- d. State the role of muscular diaphragm associated with the dead spaces as found during gaseous exchange in mammals.

OR

Give labeled diagrams of the blood cells as found in man and state the role of the one that is associated with the clotting of the blood.

- e. Explain about the endocrine glands and hormones mentioning the effect of lack of hormone insulin.

OR

State the process of sexual reproduction as found in plants.

- f. Define the terms genes, mutation and alleles used in genetics.

OR

State the nature of physical factors and parasitism with citing examples as found in an ecosystem.