

GREENLAWNS SCHOOL, WORLI
Terminal Examination 2018
BIOLOGY

Std: X

Marks: 80

Date: 27/09/2018

Time: 2 hrs

Answer to this paper must be written on the paper provided separately. You will **not** be allowed to write during the first **10** minutes. This time is to be spent in reading the Question paper. **Section I** is compulsory. Attempt **any four** questions from **Section II**.

SECTION I (40 Marks)

*Attempt **all** questions from this Section*

Question 1

(a) Name the following: [5]

- i. The term used for Bowman's capsule and glomerulus together.
- ii. The only gaseous hormone in the plant system.
- iii. The source of oxygen given out by plants in photosynthesis.
- iv. Nerves which carry messages from CNS to the effector organ.
- v. The successors of *Homo erectus*.
- vi. The kind of pollution caused from brick kilns.
- vii. A thin membrane covering the entire front part of the eye.
- viii. The type of gene which, in the presence of a contrasting allele, is not expressed.
- ix. The cells of islets of Langerhans in pancreas which secrete insulin.
- x. Colourless fluid found in brain and spinal cord.

(b) Complete the following sentences with appropriate words: [5]

- i. The physical expression of genes is called _____
- ii. The chemical used to test the presence of starch in the cell of a leaf is _____
- iii. The knot of blood vessels inside the Bowman's capsule is _____
- iv. Nervous system and _____ system are very closely related.
- v. _____ is any constituent of air, water or land which causes pollution.
- vi. Oversecretion of thyroxin causes _____
- vii. _____ is regarded as the "Father of Evolution."
- viii. The growth movement of plants in response to touch stimulus is called _____
- ix. _____ is a condition in which the lens turns opaque.
- x. Ozone intercepts _____ radiation.

(c) Give the exact location and function of the following: [5]

- | | |
|----------------------|--------------------|
| i. Pons | iv. Loop of Henle |
| ii. Thylakoid | v. Vitreous humour |
| iii. Lacrimal glands | |

(d) Choose the **ODD** one out from the given terms and name the **CATEGORY** to which the others belong: [5]

Example: Nose, Tongue, Arm, Eye

Answer: Odd Term – Arm, Category – Sense organs

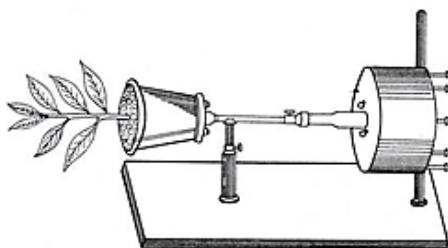
- i. Dendrites, Spinal cord, Axon, Medullary sheath
- ii. Myopia, Hyperopia, Xerophthalmia, Astigmatism
- iii. Acromegaly, Cretinism, Simple goitre, Myxoedema
- iv. Light intensity, Water content, Temperature, Chlorophyll
- v. Pinna, Diaphragm, Vermiform appendix, Wisdom teeth

- (e) Differentiate between the following pairs on the basis of criteria mentioned within the brackets: [5]
- Diabetes mellitus and diabetes insipidus (major symptom)
 - Lamarck's and Darwin's theory (facts described)
 - Air and water pollution (effects on human health)
 - Sympathetic and parasympathetic system (effect on intestines)
 - Dominant and recessive trait (character ear lobe)

- (f) Explain the following terms: [5]
- Mutation
 - Photolysis
 - Synapse
 - Osmoregulation
 - Evolution

- (g) Give scientific reasons for the following: [5]
- Cro-Magnon man is considered to be very near to modern humans.
 - Glucose is absent in the urine of a healthy person.
 - The hand automatically shows the direction to turn a cycle without thinking.
 - Mendel selected garden pea for his experiments.
 - Plants growing indoors tend to bend towards the open window.

- (h) Given below is the diagram of a Clinostat. Study the same and answer the questions that follow:



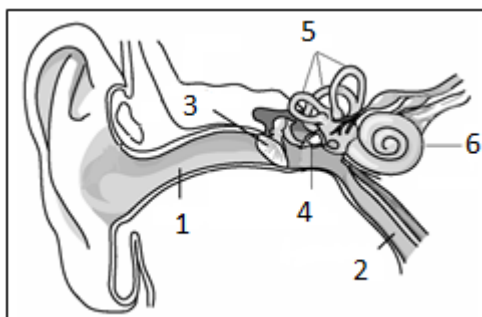
- What is the instrument used to demonstrate in the laboratory? [1]
- What will you observe in the set up if it is kept as it is after a few days? [1]
- What will you observe in the set up if the clinostat is rotated? Why? [1]
- Define stimulus and response. [2]

SECTION II (40 Marks)

*Attempt any **four** questions from this section*

Question 2

- (a) The given diagram is of human ear. Study the same and then answer the questions:

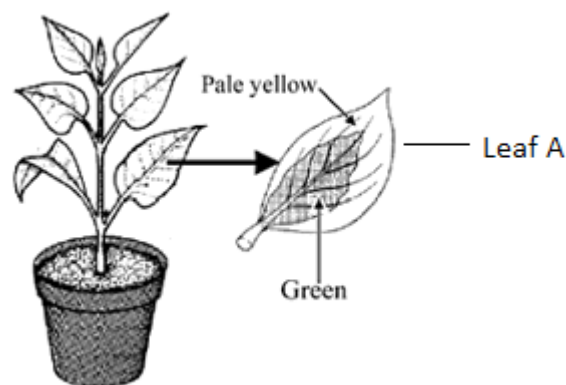


- Label parts 1 to 6. [3]
- Would there be any difference if the three tiny bones in the ear are replaced by one bone? Why? [1]
- Give the functions of parts of 5 and 6. [1]

- (b) A pea plant which is homozygous for green pods which are inflated (GGII) is crossed with a homozygous plant for yellow pods which are constricted (ggii).
- Give the phenotype and genotype of the F₁ generation. Which type of pollination has occurred to produce F₁ generation? [1½]
 - Write the phenotypic ratio of the F₂ generation. [½]
 - Write the possible combinations of the gametes that can be obtained if two F₁ hybrid plants are crossed. [2]
 - State Mendel's law of 'Segregation of Gametes.' [1]

Question 3

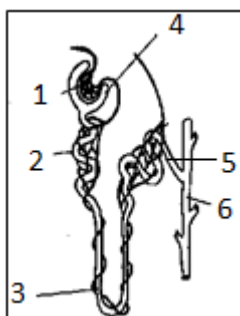
- (a) A potted plant with variegated leaves was taken in order to prove a factor necessary for photosynthesis. The potted plant was kept in the dark for 24 hours and then placed in bright sunlight for a few hours. Observe the diagrams and answer the questions:



- What aspect of photosynthesis is being tested in the above diagram? [½]
 - Represent the process of photosynthesis in the form of a balanced equation. [1]
 - Why was the plant kept in the dark before beginning the experiment? [½]
 - What will be the result of the starch test performed on leaf 'A' shown in the diagram? [1]
 - Give an example of a plant with variegated leaves. [½]
 - Draw a neat and labelled diagram of a chloroplast. [1½]
- (b) Natural selection is the key concept of Darwinian theory of evolution. [2]
Explain with the help of an example.
- (c) Mention any four objectives of Swachh Bharat Abhiyan. [2]
- (d) Expand NADP. [1]

Question 4

- (a) The given diagram represents a mammalian kidney tubule: Observe and answer the questions that follow:

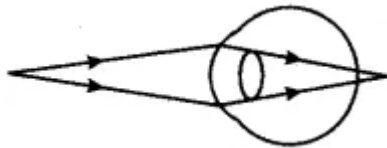


- Label the parts 1, 3, 5 and 6. [2]
- What is the liquid entering part 2 called? [½]
- Give the function of parts 2 and 4. [2]
- What are diuretics? [½]

- (b) Draw a labelled diagram of a myelinated neuron. [2]
- (c) Give functions of the following hormones: [2]
- | | |
|--------------|---------------|
| i. LH | iii. Glucagon |
| ii. Oxytocin | iv. TSH |
- (d) Why does an alcoholic person when drunk walks clumsily? [1]

Question 5

(a) Given below is a diagram depicting a defect of the human eye. Study the same and answer the questions that follow:



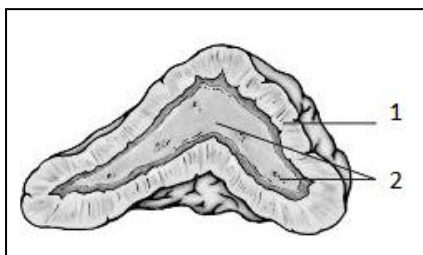
- | | |
|---|-----|
| i. Name the defect shown in the diagram. | [½] |
| ii. Give two possible reasons for this defect. | [2] |
| iii. Name the type of lens used to correct this eye defect. | [½] |
| iv. Draw a labelled diagram to show how the defect is rectified using the lens named above. | [2] |

(b) Why do men suffer from colour blindness? Trace the percentage of the progeny when a colour blind father marries a normal mother. [2]

- (c) List the functions of the following plant hormones: [2]
- | | |
|---------------|-------------------|
| i. Cytokonins | iii. Gibberellins |
| ii. Auxins | iv. Abscisic acid |
- (d) Mention the characteristics of the image that falls on the retina of the eye. [1]

Question 6

(a) The figure below shows an endocrine gland:



- | | |
|--|------|
| i. Identify the endocrine gland. | [½] |
| ii. Where is this gland located? | [½] |
| iii. Label parts 1 and 2. | [1] |
| iv. Name the hormones of part 1. | [1½] |
| v. Give function of the hormone of part 2. | [½] |
| vi. What is Cushing's syndrome?
Give one symptom. | [1] |

- (b) Write briefly on the following as specified after each: [5]
- Conditioned reflex (Explain the term and give one example)
 - Global warming (cause and effect)
 - Urine (organic and inorganic constituents)
 - Exophthalmic goitre (cause and symptom)
 - Rods (pigment and function)
