

**Greenlawns High School**  
**Preliminary Examination 2023-24**  
**Subject: Biology**

**Std: X C**

**Date: 03/01/2024**

**Time: 2 Hours**

**Marks: 80**

- Answers to this Paper must be written on the paper provided separately.
- You will not be allowed to write during first 15 minutes.
- This time is to be spent in reading the question paper.
- The time given at the head of this Paper is the time allowed for writing the answers.
- Section A is compulsory. Attempt any four questions from Section B.

**SECTION A**

**(Attempt all questions from this Section.)**

**Question.1**

**(15)**

**Choose the correct answers to the questions from the given options:**

- i) \_\_\_\_\_ pours an alkaline secretion into the semen which neutralizes acid in female's vagina.
- |                   |                     |
|-------------------|---------------------|
| a) Cowper's gland | b) Seminal vesicles |
| c) Prostate gland | d) Thyroid gland    |
- ii) Which of the following hormones is not secreted by the pituitary gland?
- |                    |                                 |
|--------------------|---------------------------------|
| a) Glucocorticoids | b) Gonad stimulating hormone    |
| c) Somatotropin    | d) Adrenocorticotrophic hormone |
- iii) The collective name for utriculus and sacculus is \_\_\_\_\_.
- |                   |              |
|-------------------|--------------|
| a) Ear ossicles   | b) Vestibule |
| c) Organ of corti | d) Labyrinth |
- iv) An alcoholic person when drunk, is unable to walk properly, which part of his brain is affected by alcohol?
- |                      |                 |
|----------------------|-----------------|
| a) Cerebrum          | b) Cerebellum   |
| c) Medulla oblongata | d) Hypothalamus |
- v) Which of the following statement is incorrect?
- |   |
|---|
| a) Kidney eliminates urea from the blood through urine.                 |
| b) Urine is yellow in colour due to the presence of urochrome.          |
| c) Kidney stone are formed due excessive uric acid and calcium oxalate. |
| d) Expulsion of urine through urethra is called Parturition.            |

vi) Which of the following valve is located at the aperture between the left auricle and left ventricle?

- a) Tricuspid valve
- b) Bicuspid valve
- c) Pulmonary semilunar valve
- d) Aortic semilunar valve

vii) Which of the following statement is true for photosynthesis?

- a) Accumulation of carbohydrates reduces the rate of photosynthesis.
- b) Only 10% of water absorbed by the root is utilized in photosynthesis.
- c) The optimum temperature for photosynthesis is 40°C.
- d) The chloroplast are concentrated in lower layer of the leaf.

viii) Which of the following help to reduce excess of transpiration?

- a) Broad leave
- b) Thin cuticle
- c) Sunken stomata
- d) Many stomata.

ix) Which of the following statement is true for a cell placed in hypertonic solution?

- a) Cell enlarges due to exosmosis.
- b) Cell shrinks due to exosmosis.
- c) Cell enlarges due to endosmosis.
- d) Cell shape and size remains unchanged.

x) For which of the following genotype, the phenotype is Tongue Non-roller?

- a) RR
- b) Rr
- c) rR
- d) rr

xi) During which phase of cell cycle does the mitochondria divide?

- a) G<sub>1</sub> Phase
- b) G<sub>2</sub> Phase
- c) S phase
- d) G<sub>0</sub> phase

xii) Which plant hormone is used to elongate the apples?

- a) Auxins
- b) Cytokinins
- c) Ethylene
- d) Gibberellins

xiii) Which of the following had prognathous face?

- a) Homo Habilis
- b) Homo Erectus
- c) Australopithecus
- d) Cro- Magnon

xiv) Which of the following is the barrier method used for contraception?

- a) Tubectomy
- b) Copper -T
- c) Diaphragms
- d) Pills

xv) Which of the following is classified as bio-degradable waste?

- a) Syringes
- b) Cow dung
- c) Metallic cans
- d) Needles



## Question.2

### i) Name the following:

(5)

- A small tubular knot, fitting like a cap on the upper pole of testis.
- The special groups of hormone secreting cells present in pancreas.
- The branches of fibres running along the walls of ventricles.
- The protein which helps in the coiling and packaging of DNA in nucleosomes.
- The contraction of cytoplasm from the cell wall due to withdrawal of water.

### ii) Fill in the blanks:

(5)

- \_\_\_\_\_ allows diffusion of substances of mother to foetus.
- \_\_\_\_\_ equalizes the air pressure on the either side of the ear drum allowing it to vibrate freely.
- The ureter arises from the notch called \_\_\_\_\_ in the kidney.
- \_\_\_\_\_ are the kind of chromosomes which determine general body features.
- \_\_\_\_\_ is used as an indicator of moisture in transpiration experiment.

### iii) State whether the following statements are true or false. If false re-write the correct form of the statement by changing the underlined word. (5)

- The fixing of the morula to the endometrium is termed as implantation.
- Insufficient secretion of insulin causes diabetes insipidus.
- Iris of an eye is a source of an individual's identification.
- Lenticels never close. They remain open all the times.
- Variation is a sudden change in one or more genes, or in the structure of chromosome.

### iv) Choose the odd one out from the following terms and name the category to which the others belong: (5)

- Cretinism, Myxoedema, Simple goiter, Exophthalmic goiter.
- Pinna, Auditory canal, Cochlea, Tympanum.
- Pia mater, Dura mater, Gray matter, Arachnoid.
- Granum, Cristae, Thylakoid, Stroma.
- Adenine, Guanine, Cytosine, Thyroxin.

v) Match the following: (Write the correct pair eg. i-a)

(5)

Column A	Column B
i) Interphase	a) Centromere attaching two chromatids divides
ii) Prophase	b) Spindle fiber disappears
iii) Metaphase	c) Daughter cells are separated
iv) Anaphase	d) Nuclear membrane and nucleolus disappears
v) Telophase	e) Chromosome line up in one plane at equator
	f) No visible change in chromosome

### SECTION B

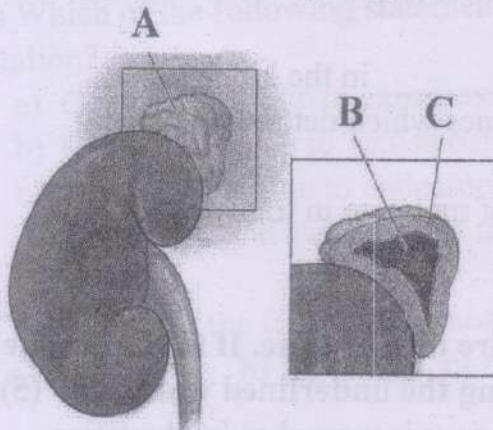
(Attempt any 4 questions from this Section.)

#### Question.3

(10)

i) Write the location of the pituitary gland. (1)

ii) Study the following diagram and answer the questions that follow: (2)



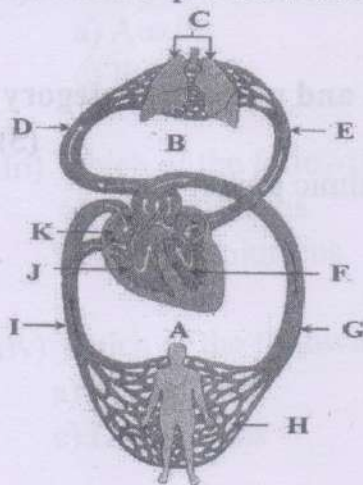
a) Identify the gland labelled as A.

b) Write any one function of hormone secreted by part B.

iii) Explain the reaction of blood clotting. (2)

iv) The following diagram represents the circulation of blood in mammals. (2)

Answer the questions that follow:

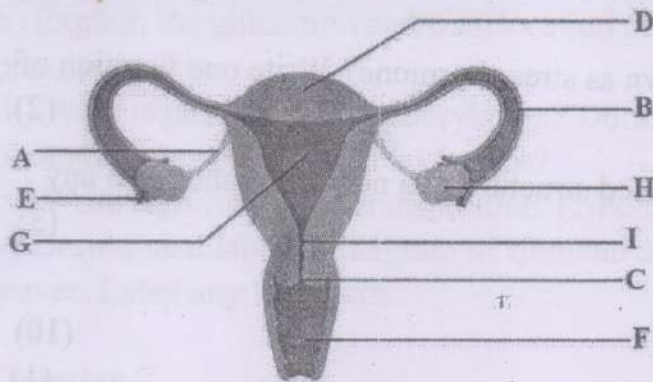


a) Name the type of blood circulation labelled as A and B.

b) Write the function of G.



v) The following diagram represents the front sectional view of human female reproductive system. Answer the questions that follow. (3)

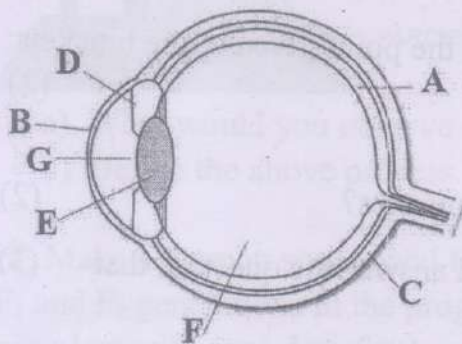


- Label parts B and C.
- Name two hormones secreted by part H.
- Write the function of G

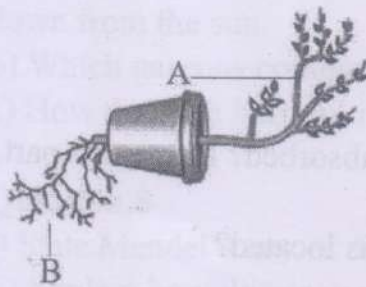
**Question.4** (10)

i) Differentiate between the following based on the point given in the brackets:  
Myopia and Hyperopia (eyeball) (1)

ii) The following diagram represents vertical section of the eye of a mammal.  
Answer the questions that follow. (2)



- Which labelled part can be replaced if it is non-functional? Name that part.
  - Write the function of part A.
- iii) Study the following picture and answer the questions that follow: (2)



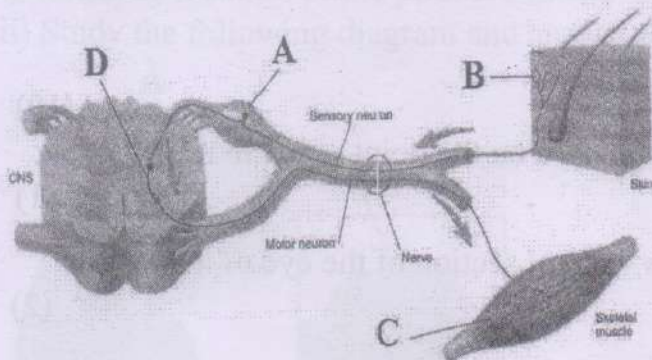
- Which type of tropism is shown in the above picture?

- b) Which label indicates positive tropism of the type mentioned by you in a) and why?
- iv) Which hormone in plants is known as stress hormone? Write one function of this hormone. (2)
- v) Draw a neat diagram of a generalised structure of a nerve cell and label any four parts. (3)

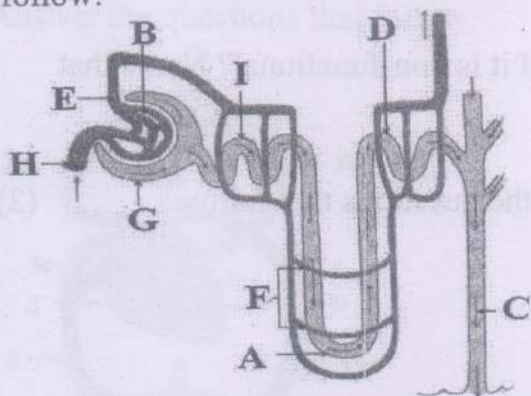
**Question.5**

(10)

- i) Define : Apical dominance (1)
- ii) Label the components of reflex arc labelled as A, B, C, and D in the following diagram. (2)



- iii) Differentiate between the following based on the point given in the brackets: Arteries and Veins (Definition, Lumen) (2)
- iv) Write the location and function of sphincter muscles? (2)
- v) Study the following diagram of a nephron and answer the question that follow: (3)



- a) In which labelled part most of the glucose is reabsorbed? Name that part.
- b) Name the process which occur in B.
- c) Label part A, In which region of the kidney, A is located?

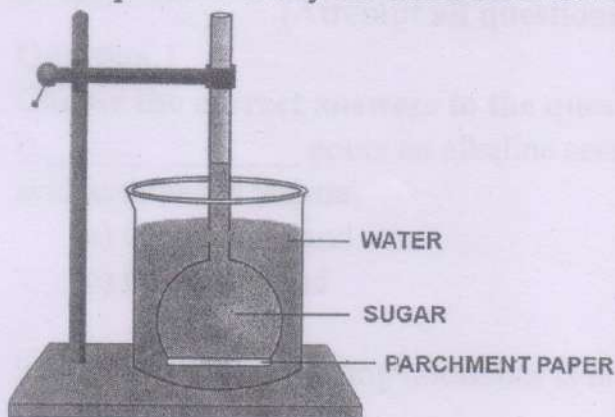


**Question.6****(10)**

- i) Define : Guttation. (1)
- ii) Explain the utilization and translocation of glucose produced during photosynthesis. (2)
- iii) What is photophosphorylation? During which phase of photosynthesis photophosphorylation take place? (2)
- iv) Write significance of transpiration. (2 Points) (2)
- v) Draw a neat labelled diagram of stomatal apparatus found in the epidermis of leaves. Label any four parts. (3)

**Question.7****(10)**

- i) Define : Imbibition (1)
- ii) The following diagram represents an experimental set- up to demonstrate a certain process. Study the same and answer the questions that follow: (2)



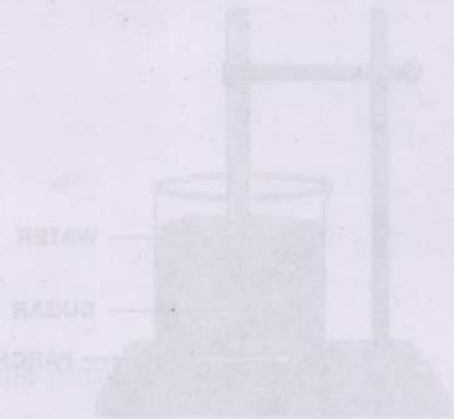
- a) What would you observe in the experimental set-up after an hour or so? (1)
  - b) Define the above process. (1)
- 
- iii) Make a Punnett square and find out the genotypic and phenotypic ratios of  $F_1$  and  $F_2$  generations in the progeny of genetic cross between a pure tall (TT) pea plant with pure dwarf (tt) pea plant. (2)
  - iv) What do you mean by vestigial organs? Write two examples of vestigial organs. (2)
  - v) (3)
    - a) Name the harmful rays which are prevented by ozone layer from coming down from the sun. (1)
    - b) Which gaseous compounds break down ozone molecule? (1)
    - c) How do these harmful rays mentioned in a) affect human beings? (1)

**Question.8****(10)**

- i) State Mendel's law of dominance. (1)
- ii) Explain how illiteracy and mortality rate are responsible for population explosion in India. (2)
- iii) Write any two harmful effects of acid rain. (2)

iv) Explain the following terms: a) Demography b) Natality (2)

v) Draw a neat labelled diagram of a single full grown root hair. Label any 4 parts. (3)



PARCHMENT PAPER

WATER

SUGAR

a) What would you observe in the experimental set-up after an hour or so?

b) Define the above process.

ii) Make a Punnett square and find out the genotypic and phenotypic ratios of

F<sub>2</sub> and F<sub>3</sub> generations in the progeny of genetic cross between a pure tall (TT)

pea plant with pure dwarf (tt) pea plant. (2)

iv) What do you mean by vestigial organs? Write two examples of vestigial

organs. (2)

v) a) Name the harmful rays which are prevented by ozone layer from coming

down from the sun.

b) Which gaseous compounds break down ozone molecules?

c) How do these harmful rays mentioned in a) affect human beings?

ii) In more than one word, explain the following: (10)

i) State Mendel's law of dominance and its origin. (1)

ii) Explain how illiteracy and mortality rate are responsible for population

explosion in India. (2)

iii) Write any two harmful effects of acid rain. (2)