

GREENLAWNS HIGH SCHOOL
PRELIMINARY EXAMINATION YEAR 2016-2017

SUBJECT : BIOLOGY
TIME : 2 HOURS

CLASS : X
MARKS : 80

Answers to this paper must be written on the paper provided separately.

You will not be allowed to write for the first 10 minutes. This time is to be spent in reading the question paper.

Section I is compulsory section.

Section II has 6 questions. Solve any four.

SECTION I (40 MARKS)

Question 1

a) Name them. (10)

- i. V shaped chromosome having centromere at the centre.
- ii. Membrane which allows solvent molecules to pass through but not solute particle.
- iii. Genetic composition of an organism.
- iv. Organ where urea is produced.
- v. Reservoir of urine.
- vi. Structures through which guttation occurs.
- vii. A green fuel.
- viii. Study of size and shape of chromosomes on a chart.
- ix. Onset of menstrual cycle.
- x. Enzyme present in sperm.

b) Define. (5)

- i) Allele
- ii) Disinfectant
- iii) Mutation
- iv) Vaccination
- v) Population Density

c) Give exact location and function of the following. (5)

- i) Acetylcholine
- ii) Inguinal Canal
- iii) Bundle of HIS
- iv) Hypothalamus
- v) Ear ossicles

d)

(5)

- i. Define the phenomenon described above.
- ii. What is its importance?
- iii. Draw the next stage.
- iv. Define synapsis.
- v. What do you mean by 'Homologous chromosome'?
- vi. Why is meiosis known as reduction division?
- vii. Give 2 other differences between mitosis and meiosis.

e) A homozygous tall plant(T) bearing red coloured flowers(R) is crossed with a
Homozygous dwarf(t) plant bearing white flower (r) (5)

- i. Give the genotype and phenotype of the F generation.
- ii. Mention the possible combinations of gametes that can be obtained from the F hybrid plant.
- iii. List the phenotype of the offsprings of the F₂ generation.
- iv. Define gene.
- v. State Mendels Law of segregation

f) Drawn below is a diagram of a stage during mitosis in a cell. (5)

- i. Identify the phase drawn above.
- ii. Name parts 1, 2, 3, 4.
- iii. Draw the next stage.
- iv. List 2 differences between mitosis in plants and animals.
- v. What is the importance of interphase?

g) Study the diagram of the female reproductive system and answer the questions that follow. (5)

- i. Name parts 1 and 5.
- ii. Give function of parts 2 and 6.
- iii. What role does part 3 play in the female body?
- iv. Where are the sperms released during coitus?
- v. Give difference between ovulation and oogenesis.

SECTION II

Solve any 4 questions from 6 questions.

Question 2

a) In relation to the double helix DNA structure below answer the following questions. (5)

- i. Who proposed the model?
- ii. What are the 2 types of nitrogenous bases?
- iii. A DNA strand has nitrogenous bases in the sequence A, T, C, G. Draw its complement.
- iv. Give the full form of A, T, C, G.
- v. A haemophilic man marries a carrier woman. Find out the probability of the offsprings having the diseases.

- b) Name the hormone responsible for the following function. (5)
- i. Contraction of uterus during child birth.
 - ii. Maintaining glucose level in blood.
 - iii. Conversion of glycogen to glucose.
 - iv. Regulates basal metabolism.
 - v. Influences secondary sexual characteristic in males.
 - vi. Responsible for growth in body.
 - vii. Increases reabsorption of water in kidneys.
 - viii. Helps react to abnormal situation.
 - ix. Causes cretinism.
 - x. Causes hair growth in female.

Question 3

- a) The following diagram shows a cross section of the male reproductive system. (5)
- i. Name parts 1, 2.
 - ii. Give the function of parts 3 and 4.
 - iii. Name the hormone and hormone producing cell in the testis.
 - iv. Why are sperms produced in large number?

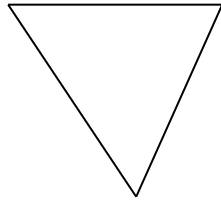
- b) Drawn below is a diagram showing an experimental set-up. (5)

- i. Define the process being depicted.
- ii. Name 2 liquids X and Y that can be used in this experiment.
- iii. What change would you observe in the set-up after sometime? Why?
- iv. What is the importance of this process in plant?

Question 4

a)

(5)



The above symbol signifies an agency.

- i. Name the agency.
- ii. Give its function.
- iii. Explain 2 reasons why there control is a population explosion in India.
- iv. List 2 functions of Red Cross.
- v. List 2 functions of WHO.

b) Study the diagram drawn below:

(5)

- i. Define the process depicted below.
- ii. Name parts 2, 5, 6.
- iii. Name the cells in contact with part.
- iv. List the function of part 3 and 4.
- v. Why is the spinal nerve a mixed nerve?

Question 5

a) Give reasons for the following statements.

(5)

- i. When you enter a dark room you cannot see clearly for some seconds.
- ii. Pituitary is a master gland.
- iii. An embryo respire but does not breathe.
- iv. Circulation of blood in mammal is known as double circulation.
- v. You feel dizzy after a ride on the merry go round.

b) Give one difference between

(5)

- i. Photolysis – phosphorylation (definition)
- ii. Bicuspid – Tricuspid valve (position)
- iii. Antigen – antibody
- iv. Active – passive immunity
- v. Gratian follicle – corpus luteum (function)

Question 6

a) Study the diagram of the eye.

(5)

- i. Label parts 1, 2, 3, 4.
- ii. Give the function of parts 6 and 10.
- iii. Name one genetic and one deficiency disease of the eye.
- iv. What do you mean by accommodation of the eye?

b)

(5)

- i. Draw a well labelled diagram of the membranous labyrinth found in the inner ear.
- ii. Give a suitable name for the following:
the sensory cells that helps in hearing (A).
part responsible for static balance of the body(B).
the membrane covered opening that connects the middle ear to inner ear (C).
fluid present in the middle chamber of the cochlea (D).
structure that maintains dynamic equilibrium (E).

Question 7

a) Choose the odd one out and give a reason.

(5)

- i. cortex, soil water, root hair.
- ii. Intestine, liver, intestinal artery, hepatic vein, hepatic portal vein.
- iii. Spinal cord, motor neuron, receptor effector, sensory neuron.
- iv. Metaphase, telophase, prophase anaphase cytokines us.
- iv. Spongy cells, upper epidemics, stoma, palisade parenchyma, sub stomatal space.

b) Draw a neat labelled diagram of the sperm.

(2)

c) Answer the following question briefly.

(3)

- i. Why is CO₂ considered as a pollutant.
- ii. Why is there a population explosion in India – 2 reasons.
- iii. Why was salvason drug banned