ASSESSMENT-I
BIOLOGY GRADE X

Maximum Marks: 80
Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately. You will not be allowed to write during the 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. The intended marks for questions or parts of questions are given in brackets[ ].

SECTION A
(Attempt all questions from this section)

Question 1
Select the correct answer to the questions from the given options. **[15]**
(Do not copy the questions,write the correct answer only).

i.**Assertion(A)** Blood group 'AB' does not contain any antibody but contains both the antigens 'A' and 'B'
Reason(R) In humans,WBC's have specific proteins on their surfaces.These proteins are called antibodies.
(a) Both A and R are true
(b) Both A and R are false
(c)A is true and R is false
(d)A is false and R is true

ii.**Assertion(A)**Haematuria is the condition in which the blood passes with urine due to some infection in the urinary tract,kidney stones or tumour.
Reason(R) An excessive number of RBC's and haemoglobin is produced in the bone marrow.So these are excreated out through the urine.
(a) Both A and R are true
(b) Both A and R are false
(c)A is true and R is false
(d)A is false and R is true

iii.Purity of gametes is linked to:
(a)Law of dominance
(b)Law of independent assortment
(c)Law of segregation
(d)Law of limiting factor

iv.The female gamete/egg cell of a human cell will have:
(a)44+XX chromosomes
(b)44+XY chromosomes
(c)22+ X chromosomes
(d)22+ Y chromosomes

v.Which of the following is not applicable to the process of photosynthesis?
(a)Oxygen is evolved
(b)Carbon dioxide is absorbed
(c)Carbon dioxide is evolved
(d)Water is utilized

vi.The number of histone proteins associated with the DNA in a nucleosome is:
(a)6 (b)8 (c)4 (d)1

vii.The phenotypic dihybrid ratio of F_2 generation is:
(a)9:3:1:1 (b)9:1:3:1 (c)9:1:3:3 (d)9:3:3:1

viii.The prime source of chlorofluorocarbons is :
(a)Domestic sewage (b)Refrigeration equipment
(c)Industrial effluents (d)Vehicular emission

ix.The process for which energy is required is:
(a)Passive transport (b)Diffusion
(c)Osmosis (d)Active transport

x.Transpiration is significant for all except:
(a)Cooling effect (b)Suction pull
(c)Ascent of sap (d)Translocation of food

xi.The organ that does not belong to the excretory system:
(a)Urethra (b)Uterus (c)Ureter (d)Urinary bladder

xii.The artery with the highest amount of nitrogenous wastes is:
(a)Hepatic artery (b)Renal artery (c)Pulmonary artery (d)Coronary artery

xiii.The process of engulfing bacteria by Neutrophils is called:
(a)Diapedesis (b)Diuresis (c)Phagocytosis (d)Diastole

xiv.An organ that produces urea:
(a)Kidney (b)Liver (c)Ureter (d)Urethra

xv.An undesirablechange in the environment is called as:
(a)Pollution (b)Population
(c)Pollutant (d)None of these

Question 2

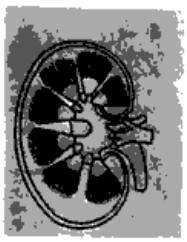
(i)Name the following. **[5]**

a.A waxy layer on the upper epidermis of leaves meant to reduce transpiration.
b.The physiological process which is the starting point of all food chains.
c.The tuft of capillaries inside the Bowman's capsule.
d.Any one vein which starts from an organ and ends in the another organ besides the heart.
e.Two main phases of photosynthesis.

(ii)Arrange the terms in each group in correct order.Write them in a logical sequence beginning with the term that is underlined. **[5]**

(a)DCT, PCT, Bowman's capsule, <u>Glomerulus</u>, Collecting duct
(b)Boil in spirit, <u>Boil in water</u>, Pour iodine solution, Place again in hot water
(c)Palisade cells, <u>Cuticle</u>, Upper Epidermis, Spongy cells
(d)Hepatic portal vein, <u>Stomach</u>, Hepatic vein, Liver
(e)Water molecule, Hydrogen and hydroxyl, <u>Photon</u>, Thylakoid

(iii)Given alongside is the longitudinal section of a human kidney.Observe the diagram and fill in the blanks. **[5]**



The kidney is composed of an enormous number of minute tubules called (a)_____ tubules or nephrons or renal tubules or just kidney tubules.The longitudinal section of the kidney shows two main regions an outer dark (b)_____ and on inner lighter (c)_____ .The medulla contains several finely striped structures in conical shape.termed as (d)_____ .The papilla is another fine structure which projects into the (e)_____ of the kidney.

(iv)Rewrite the correct form of the statement. **[5]**

(i)The outer darker portion of the kidney is termed as medulla.
(ii)Duplicated chromosomes remain attached at a point termed as centrosome.
(iii)Guttation is a phenomenon by which cells absorbs water by surface attraction.
(iv)The pigment urochrome is the breakdown product of the haemoglobin or dead RBCs.
(v)Colourblindness is a genetic disorder in which the blood does not clot.

(v)Given below are groups of terms.In each groups the first pair indicates the relationship between the two terms .Complete the second pair accordingly. **[5]**

(a)Respiration: Carbon dioxide ::Photosynthesis :_____
(b)Chest pain:Angina pectoris :: Heart attack:_____
(c)RBCs:Polycythemia :: WBCs:_____
(d)Light reaction: Granum :: Dark reaction: _____
(e)WBCs:_____ :: RBCs:Erythropenia

SectionB

(Attempt any four questions from this section)

Question 3.

(i)Define pollution. **[1]**
(ii)Why is colourblindness rare in woman? **[2]**
(iii)There is frequent urination in winter than summer.Give a biological reason for this statement. **[2]**
(iv)What is meant by term 'Double circulation' **[2]**
(v)Given below is the diagram of plasmolysed cortical cell of a root. **[3]**

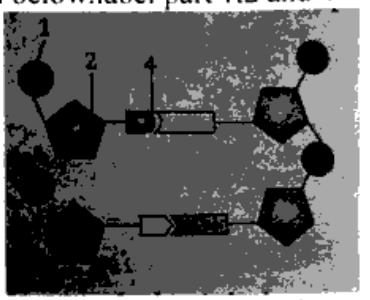
Copy the diagram and label the following parts in the diagram.
(a)Cytoplasm (b)Hypertonic solution (c)Plasma membrane (d)Nucleus (e)Vacuole

Question4.

(i)Explain the term Excretion. [1]

(ii)Mention any two objectives of Swachh Bharat Abhiyan. [2]

(iii)Identify the molecule shown below.label part 1,2 and 4 [2]



(iv)Differentiate between Plasmolysis and Deplasmolysis. [2]

(v)Draw a neat, labelled diagram of an animal cell showing Metaphase with four chromosomes. [3]

Question5.

(i)Define Diapedesis. [1]

(ii)Name the white blood cells that. a)Shows phagocytosis b)Produce antibodies [2]

(iii)It is not possible to demonstrate respiration in a green plant kept in sunlight.why? [2]

(iv)Differentiate between Glycosuria and Albuminuria. [2]

(v)An outline sketch of a tree is shown below.Study the same and answer the questions that follows: [3]

(a)Name and define the phenomenon labelled A in the diagram.

(b)Write the significance of the process mentioned in A for the plants.

(c)What do the direction of arrows in B and C indicate?

Question6.

(i)Define photolysis of water. [1]

(ii)Draw neat and labelled diagram to show that oxygen is released during photosynthesis. [2]

(iii)Define Exudation. [2]

(iv) What is radioactive pollution?Why is it more harmful than other types of pollution. [2]

(v)A homozygous plant having round (R) and yellow(Y) seed is crossed with another homozygous plant having wrinkled (r) and green (y) seeds.Answer the following questions: [3]

(a)Name and state the law which explains the dihybrid phenotypic ratio.

(b) Give the possible combinations of gametes that can be obtained from F_1 hybrids.

(c)Give the genotype of the F_1 generation.

Question7.

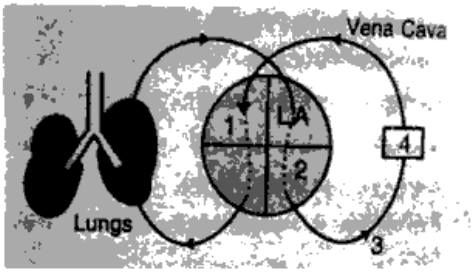
(i)Where are Hydathodes located? [1]

(ii)State any two harmful effects of acid rain. [2]

(iii)Explain in brief Hepatic portal system. [2]

(v)Addition of salt to pickles prevent growth of bacteria.explain it. [2]

(v)Given diagram is schematic representation of the circulatory system in human.Study the same and answer the questions that follow: [3]



(a)Label the parts 1 and 4 indicated in the diagram.

(b)Which of the above mentioned number is the thickest artery?Also write its name.

(c)Draw neat and labelled diagram of the transverse section of venacava and the part numbered as 3.Make sure to show the structural differences between these two in the diagram.

Question8.

(i)Define Allele. [1]

(ii)Mention the two pairs of nitrogenous bases that are present in a DNA strand and pair with each other by hydrogen bonds. [2]

(iii)What are the four main forces which contributes to the ascent of sap. [2]

(iv)Write the main steps in coagulation of blood in their correct sequence. [2]

(v)Study the diagram given below and then answer the question that follow: [3]

(a)Name the region in the kidney where the above structure is present?

(b)Name the parts labelled 1.2.3 and 4

(c)What is the technical terms given to the process occurring in 2 and 3?Briefly describe the process.