GRADE X
MODEL PAPER-II

Biology
SECTION -A

MM:80

Q 1.Select the correct answers to the questions from the given options. (Do not copy the question. Write the correct answer only)

15

(i) A plant cell may burst when:
(a) Turgor pressure equalizes wall pressure. (b) Turgor pressure exceeds wall pressure.
(c) Wall pressure exceeds turgor pressure. (d) None of above
(ii) The individual flattened stacks of membranous structures inside the chloroplasts are known as:
(a) Grana (b) Stroma (c) Thylakoids (d) Cristae
(iii) The nephrons discharge their urine at the:
(a) Urinary bladder (b) Urethra (c) Renal pelvis (d) Renal pyramid
(iv) Gigantism and Acromegaly are due to:
(a) Hyposecretion of Thyroxine (b) Hyposecretion of Growth hormone
(c) Hypersecretion of Thyroxine (d) Hypersecretion of Growth hormone
(v)The mineral ion needed for the formation of blood clot is:
(a) Potassium (b) Sodium (c) Calcium (d) Iron

(vi) The rate of transpiration will be fastest when the day is
(a) Hot, humid and windy (b) Cool, humid and windy (c) Hot, humid and stil (d) Hot, dry and windy
(vii) Cytokinins are predominantly present in:
(a) Permanent tissues (b) Meristematic tissues (c) Endodermis (d) Cortical region
(viii) A Cell has five pairs of chromosomes. After mitotic division, the number of chromosomes in the daughter cells will be:
(a) Five (b) Ten (c) Twenty (d) Forty
(ix) Learning is related to:
(a) Cerebrum (b) Cerebellum (c) Medulla Oblongata (d) Hypothalamus
(x) The special protein, forming disc shaped structure in centromere.
(A) Chromomere (B) Chromonema (c) Kinetochore (D) Lycin

(xi) The random spontaneous change in genetic make up.
(a) Variation (b) Heredity (c) Mutation (d) Deletion
(xii) The raw materials for photosynthesis
(a) Carbon dioxide, water, chlorophyll and sunlight (b) Carbon dioxide and water
(c) Oxygen, water, chlorophyll and sunlight (d) Soil and water
(xiii) The connections between two grana
(a) stroma (b) grana (c) lamella (d) chlorophyll
(xiv) The production of ATP from ADP, by adding one phosphate group in Hill reaction.
(a) Oxidative phosphorylation (b) Photophosphorylation
(c) Both oxidative and photophosphorylation (d) Photolysis
(xv) Centrosomes are formed in_____
(a) G1 phase (b) S phase (c) G_2 phase (d) Mitotic phase

Q 2. (i) Name the following: [5]
(a) The layer of the eyeball that provides nourishment to the eye.
(b) One gaseous compound which depletes the ozone layer.
(c) The structure which connects the placenta and the foetus.
(d A pair of corresponding chromosomes of the same shape and size and derived one from each parent.
(e) The compound formed when hemoglobin combines with carbon dioxide in blood.

(ii) Given below are five sets of terms. In each case, arrange and rewrite each set so as to be in logical

sequence. [5]

(a) Tympanum, stapes, malleus, incus, fenestra ovalis
(b) Graafian follicle, uterus, oviducal funnel, fallopian tube, ovum
(c) Soil water, root hair, xylem, cortex, endodermis
(d) Association neuron, effector, motor neuron, receptor, sensory neuron.
(e) Lens, pupil, conjunctiva, yellow spot, cornea.

(iii) Match the items given in **Column I** with the most appropriate ones in **Column II** and rewrite the correct matching pairs. [5]

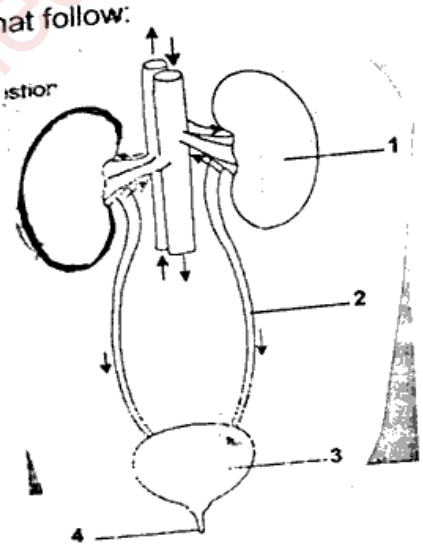
Column I	Column II
(a) Cranial nerves	1. Testosterone
(b) Leydig cells	2. Natural reflex
(c) Acetylcholine	3. 12 pairs
(d) Spinal nerves	4. Prolactin
(e) Sneezing	5. Neurotransmitter
	6. 18 pairs
	7 31 pairs
	8. Conditioned reflex

(iv) Identify the ODD term in each set and name the CATEGORY to which the remaining three belong: [5]
(i)Addison's disease, Cushing's Syndrome, Acromegaly, Leukaemia.
(ii) Insulin, Adrenaline, Pepsin, Thyroxine
(iii) Axon, Dendron, Photon, Cyton.
(iv) Chicken pox, Colour blindness, Haemophilia, Albinism.
(v) Polythene bag, Crop residue, Animal waste, Decaying vegetable.

(v) Mention the exact location of the following: [5]
(i) Testis (ii) Incus (iii) Thylakoids (iv) Amniotic fluid(v) Corpus callosumn

SECTION -B

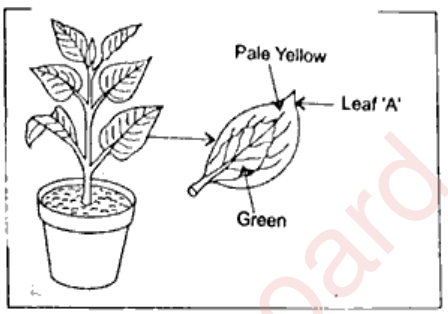
Q 3.
(i) Define -Plasmolysis. [1]
(ii) Give one difference between Mitral valve and Aortic semilunar valve. [2]
(iii) Mention any two objectives of 'Swachh Bharat Abhiyan'. [2]
(iv) Loss of nucleus and mitochondria make erythrocytes more efficient in their function. [2]
(v) The diagram given below represents an organ system in the human body. Study the same and answer the questions that follow: [3]



(a) Identify the system of human.
b) Label the parts marked 2 and 4. Mention the function of part 4.
(c) What is the fluid that accumulates in part 3?

(i) Expand -ABA. [1]
(ii) What are the age restrictions for marriage by law for boys and girls in India? [2]
(iii) We feel blinded for a short while entering a dark room when coming from bright light. [2]
(iv) Education is very important for population control. Explain. [2]
(v) 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. [3]

(a) What aspect of photosynthesis is being tested in the above diagram?
(b) Why was the plant kept in the dark before beginning the experiment?
(c) What will be the result of the starch test performed on leaf 'A' shown in the diagram?

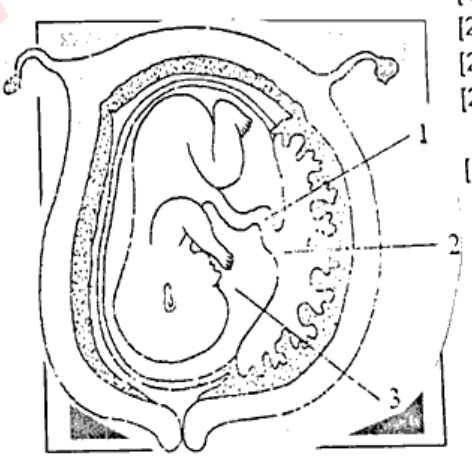


Question 5.

(i) Define -Gestation. [1]
(ii) Mention the three main steps involved in the formation of the urine. [2]
(iii) Mention two functions of the amniotic fluid. [2]
(iv) Mention two ways by which the spinal cord is protected in our body. [2]
(v) Draw a neat, labelled diagram showing longitudinal section of kidney. [3]

Question 6.

(i) Define -Synapse. [1]
(ii) What is the function of cerebrospinal fluid? [2]
(iii) Give one difference between Hydrotropism 1m and Thigmotropism. [2]
(iv) Injury to medulla oblongata leads to death. Give reason. [2]
(v) The diagram given alongside is that of a developing human foetus. Study the diagram and then answer the questions that follow: [3]
(a) Label the parts numbered 1 and 2 in the diagram.
(b) Mention any one function of the part labelled 2 in the diagram.
(c) Give the significance of the part numbered 3 in the diagram.

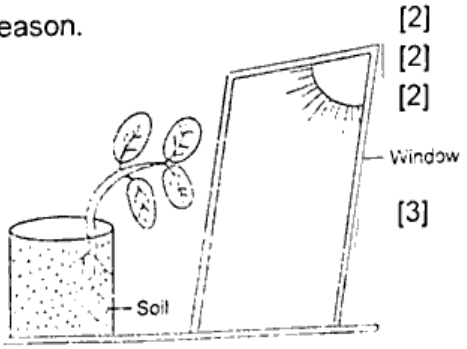


Question 7.

(i) Explain -Gestation period. [1]
(ii) Give one difference between Metaphase and Anaphase. [2]
(iii) Suggest two effective ways of reducing global warming [2]
(iv) Why is population explosion a cause of grave concern? Give any two reasons. [2]
(vi) Draw a well labelled diagram of the membranous labyrinth found in the inner ear. [3]

Question 8.

(i) Define -Photophosphorylation. [1]
(i) Mature erythrocytes in humans lack nucleus and mitochondria. Give reason. [2]
(iii) Differentiate between -Demography and Population density [2]
(iv) What is the importance of transpiration for plants? [2]
(v) The diagram given below represents a plant growing in a glass jar. The glass jar is placed near a window. Study the diagram and answer the questions that follow: [3]
(a) Name the tropic movements shown by the shoot.
(b) What is the stimulus that made the shoot bend towards the window?
(c) Which plant hormone caused the above effect?



BIOLOGY GRADE - X

SCIENCE Paper – 3 ***(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.

*Attempt **all** questions from **Section A** and **any four** questions from **Section B.***

The intended marks for questions or parts of questions are given in brackets [ ].

SECTION A (40 Marks) *Attempt **all** questions from this Section*

Question 1. Select the correct answer to the questions from the given options.(Do not copy the question.Write the correct answer only): (15)

(i)Auxins are produced by:
(a)old leaves (b)Fruits (c)buds (d)woody stem

(ii)A single highly coiled tube where sperms are stored,get concentrated and mature is known as:

(a)Epididymis (b)Vas efferentia (c)Vas deferens (d)Seminiferous tubule

(iii)Chromosomes get aligned at the centre of cell during:
(a)Metaphase (b)Anaphase (c)Prophase (d)Telophase

(iv)Polluted water can cause:
(a)Cholera (b)Mumps (c)Tuberculosis (d)Measles

(v)Which one of the following is mainly associated with the maintenance of the posture?
(a)Cerebrum (b)Cerebellum (c)Thalamus (d)Pons

(vi)An example of non-biodegradable waste is:
(a)Vegetable peels (b)Sewage (c)Livestock waste (d)DDT

(vii)The cell component visible only during cell division:
(a)Mitochondria (b)Chloroplast (c)Chromosome (d)Chromatin

(viii)Pulse wave is mainly caused by the:
(a)Systole of atria (b)Diastole of atria (c)Systole of the left ventricle (d)Systole of right ventricle
(ix)The recessive gene is one that expresses itself in:
(a)Heterozygous condition (b)Homozygous condition (c)F_2generation (d)y-linked inheritance
(x)A gland which secretes both hormone and enzyme is the:
(a)Pituitary (b)Pancreas (c)Thyroid (d)Adrenal

(xi)The ventral root ganglion of the spinal cord contains cell bodies of the:
(a)Motar neuron (b)Sensory neuron (c)Intermediate neuron (d)Association neuron
(xii) A plant is kept in a dark cupboard for about 48 hours before conducting any experiment on photosynthesis to:
(a) Remove starch from the plant.

(b) Ensure that starch is not translocated from the leaves.
(c) Remove chlorophyll from the leaf of the plant.
(d)Remove starch from the experimental leaf.

(xiii)The part of the human eye where rod cells and cone cells are located is the:
(a)Retina (b)Cornea (c)Choroid (d)Sclera

(xiv)A reflex arc in man is best described as movement of stimuli from:
(a)Receptor cell,sensory neuron,relaying neuron,effector muscles.
(b)Receptor cell,efferent nerve,relaying neuron,muscles of the body
(c)Receptor cell,spinal cord,motor neuron,relaying neuron.
(d)Receptor cell,synapse,motor neuron,relaying neuron.

(xv)NADP is expanded as:
(a)Nicotinamide, adenosine dinucleotide phosphate (b)Nicotinamide, adenine dinucleotide phosphate
(c)Nicotinamide, adenine dinucleus phosphate (d)Nicotinamide, adenosine dinucleus phosphate

Question 2

(i)Name the following: (5)
(a)The phenomenon by which living or dead plant cells absorb water by surface attraction.
(b)The phase of cardiac cycle in which the auricles contract.
(c)The organ where urea is produced.
(d)The hormone that helps increase the reabsorption of water from the kidney tubules.
(e)IAA,IBA,NAA and 2,4-D.

(ii)Arrange and rewrite the terms in each group in the correct order so as to be in a logical sequence beginning with the term that is underlined. (5)
(a)Tympanum, stapes, malleus, incus, fenestra ovalis
(b)Graafian follicle, uterus, oviducal funnel, fallopian tube, ovum
(c)Soil water, root hair, xylem, cortex, endodermis
(d)Association neuron, effector, motor neuron, receptor,sensory neuron.
(e)Lens, pupil, conjunctiva, yellow spot,cornea.

(iii)Match the items given in column I with the most appropriate ones in column II and rewrite the correct matching pairs. (5)

Column I	Column II
(a) Potometer	(i) Geotropism
(b) Hypothalamus	(ii) Phototropism
(c) Roots	(iii) Vasectomy
(d) Contraception in males	(iv) Sudden change in gene
(e) Mutation	(v) Pituitary gland
	(vi) Tubectomy
	(vii) Transpiration
	(viii) Thyroid gland

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

(a)Ureter, uterus, urethra, oviduct.
(b)Chlorophyll, magnesium, photosynthesis, haemoglobin, calcium.
(c)Endothelium, collagen fibres, smooth muscles, myelin sheath.
(d)Grey matter, piamater, ventricles, pericardium.
(e)Fertilisation, capacitation, fermentation, ovulation.

(v)State the exact location of the following structures: (5)

(a)Thylakoids (b)Organ of corti (c)Lenticele (d)Bicuspid valve (e)Loop of Hanle

SECTION-B

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

Question 3.

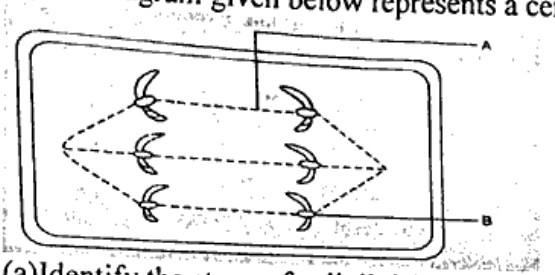
(i)Define-Gene. (1)

(ii)Give one difference between tubectomy and vasectomy. (2)

(iii)Give a brief of selective reabsorption. (2)

(iv)Mention two ways in which transpiration is beneficial to plants. (2)

(v)The diagram given below represents a certain stage of mitosis: (3)



(a)Identify the stage of cell division.

(b)Name the parts labelled A and B.

(c)What is the unique feature observed in this stage?

Question 4.

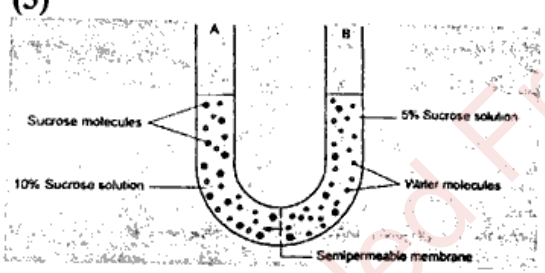
(i)Expand-ACTH. (1)

(ii)What is a variegated leaf and why is this kind of leaf used for the experiment? (2)

(iii)In summer season less quantity of urine is produced than in winter. (2)

(iv)Testis lies outside the abnormal cavity. Give reason. (2)

(v)Given below is the diagram of an experiment. Study the diagram and answer the questions that follow: (3)



(a)What phenomenon is intended to be shown by this experiment.

(b)Which limb of U-tubeA or B contains more concentrated sucrose solution?

(c)Why is the membrane separating the two solutions labelled as semipermeable membrane?

Question 5.

(a)Define-phagocytosis. (1)

(b)Give dual function of human ear. (2)

(c)The oviducal funnel is lined with cilia. (2)

(d)How is cerebrum different from spinal cord in case of arrangement of neurons? (2)

(e)Draw a neat and labelled diagram of chloroplast. (3)

Question 6.

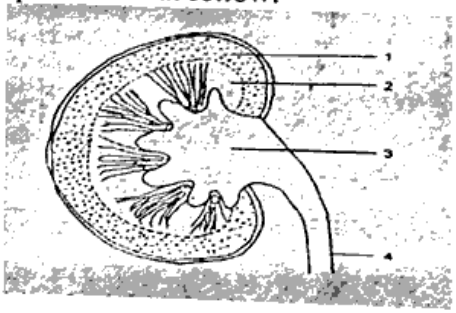
(i)Define bleeding in plants. (1)

(ii)Differentiate between acrosome and centrosome. (2)

(iii)Give the function of placenta. (2)

(iv)Relaxin hormone is released at the time of parturition. Explain. (2)

(v)The diagram given below shows a section of human kidney. Study the diagram carefully and answer the questions that follow: (3)



(a)Label the parts numbered 1 to 3.

(b)What is the fluid that passes down part '4'?

(c)Mention the structural and functional units of kidneys.

Question 7.

(i)Define -Plasmolysis . (1)

(ii)Why is excretion important for human body? (2)

(iii)Wilted lettuce leaves become crisp/firm when placed in cold water for a while.Explain. (2)

(iv)Why does one feel blinded for a short while on coming out of a dark room? (2)

(v)Draw a labelled diagram to show a reflex arc. (3)

Question 8.

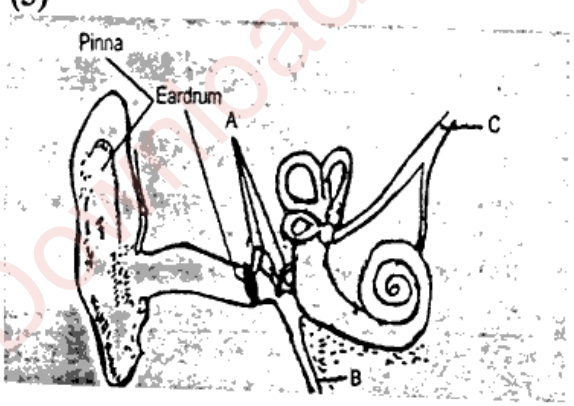
(i)Define-Haemoglobin. (1)

(ii)Differentiate between exosmosis and endosmosis. (2)

(iii)Injury to the medulla oblongata results in death.Explain. (2)

(iv)Why is ammonia the most poisonous waste by-product of metabolism? (2)

(v)Given below is the diagram of the human ear.Study the same and answer the questions that follow: (3)



(a)Give the biological term for the part labelled 'A'.

(b)State the function of B.

(c)Name the part labelled 'C'.