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BIOLOGY CLASS X
SAMPLE PAPER ICSE WITH SOLUTIONS

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For Class - XI

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from

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Hemant Shankar
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Rishabh Mishra
95.55



Yash Kaushik
91.31



Ashutosh Tiwari
90.51



Riya Singh
90.1



Janmejay Singh
89.19



Bhargavi Gupta
89.16



Rohit Gupta
88.85



Tanmay Tripathi
88.56



Akash Sharma
86.00



Sumit Kumar
85.43



Hardik Daunderiya
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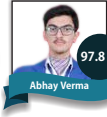


Aman Gupta
85.00



Shreyansh Gupta
84.50

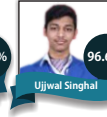
CBSE CLASS XII 2018-19



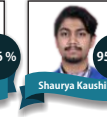
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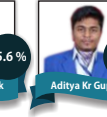
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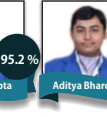
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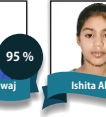
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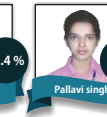
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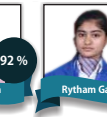
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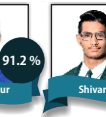
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BIOLOGY

Time allowed: 2hrs

Max Marks: 100

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 I is compulsory. Attempt any four questions from Section II.

Section-I

1. (a) Name the following:

- (i) A membrane that disappears during late prophase.
- (ii) A fluid that occupies the larger cavity of the eyeball behind the lens.
- (iii) The ground substance present in a chloroplast.
- (iv) A specific part of a chromosome that determines hereditary characteristics.
- (v) A neurotransmitter stored at the terminal end of the axon.

[5]

(b) The following paragraph is related to absorption of water from the soil.

Copy and complete the following paragraph by selecting the correct word from those given in the box. You may use the term only once.

Exosmosis, Hypertonic, Osmosis, Isotonic, Hypotonic, Cortical, Endosmosis

Water enters the root hair from the soil by the process of This is because the solution in the soil is whereas the cell sap in the root hair cell is The water then passes through the cells by cell to cell and reaches the xylem of the root.

[5]

(c) Given below are sets of 5 terms each. Without changing the first term, rearrange the remaining four so as to be in logical sequence as per the directions given in brackets for each. One has been done for you as an example.

Example: Pathogen, active immunity, produces antibodies, lymphocytes, antigen, (defence mechanism of the body)

Answer : Pathogen → antigen → lymphocytes → produces antibodies → active immunity.

- (i) Destarched plant, iodine added, washed in water, a leaf boiled in alcohol, placed in sunlight. (testing for presence of starch)
- (ii) Interphase, Anaphase, Prophase, Telophase, Metaphase (sequential stages in Karyokinesis).
- (iii) Seminiferous tubule, penis, urethra, epididymis, vas deferens. (course of passage of sperms in man).
- (iv) Pinna, cochlea, tympanum, ear ossicles, auditory canal (route through which vibrations of sound enter the ear).
- (v) Soil water, xylem, cortex, epidermis, root hair (conduction of water)

[5]

(d) State whether the following statements are True or False. If False rewrite the correct form of the statement by only changing the last word of the statement.

- (i) The alpha cells of the pancreas secrete insulin.
- (ii) Duplicated chromosomes remain attached at a point termed centromere.
- (iii) The number of pairs of autosomes in man is 22.
- (iv) Penicillin obtained from a fungus is an example of an antibody.
- (v) Plants that manufacture their own food are termed heterotrophs.

[5]

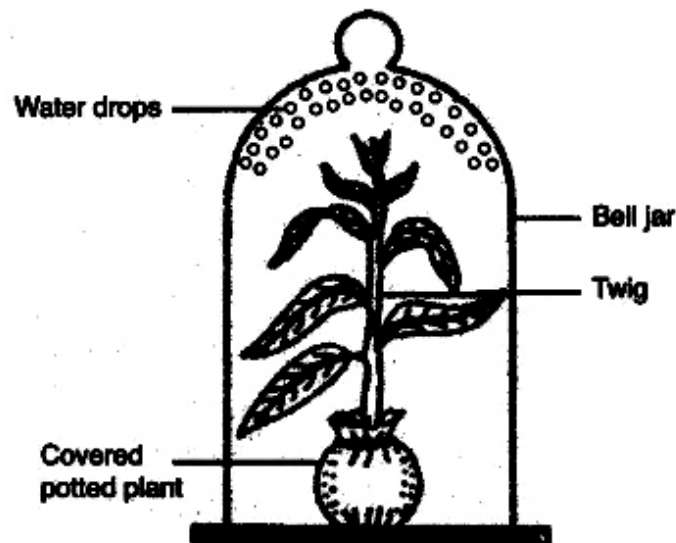
(e) Given below is an example of a particular structure and its special functional activity, e.g., Glomerulus and ultra filtration.

On a similar pattern complete the following:

- (i) Corpus luteum and
- (ii) Iris of the eye and
- (iii) Seminal vesicle and
- (iv) Phloem and
- (v) Eustachian tube and

[5]

(f) Given alongside is an experimental set up to study a particular process:



- (i) Name the process being studied.
- (ii) Explain the process named in (i) above.
- (iii) Why is the pot covered with a plastic sheet ?
- (iv) Mention one way in which this process is beneficial to the plant.
- (v) Suggest a suitable control for this experiment.

[5]

(g) Given below are incomplete explanations of certain biological processes I terms where a key word has been left out. Rewrite the completed explanation by inserting the key word in the space indicated by '^'.

(i) Birth rate is the number of '^' birth per thousand of the population per year.

(ii) Photolysis is the splitting of water molecules into hydrogen ions and hydroxyl ions in the presence of '^' and light.

(iii) Vaccine is a preparation consisting of '^' microbes which help to build immunity in the human body.

(iv) Osmosis is the movement of water molecules from its region of high concentration to its region of low concentration through a '^' membrane.

(v) Antiseptics are chemical substances applied to the '^' to destroy or prevent the growth and multiplication of harmful microbes.

[5]

(h) Briefly explain the following terms :

(i) Destarched plant

(ii) Phenotype

(iii) Death rate

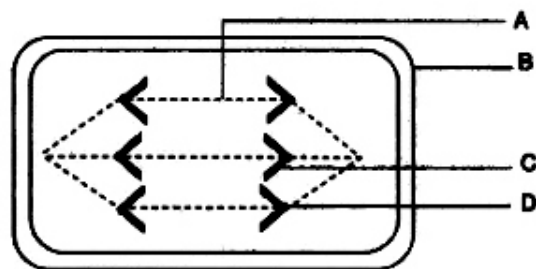
(iv) Power of accommodation of the eye.

(v) Natural immunity

[5]

Section-II

2. (a) The diagram below represents a stage in cell division. Study the same and answer the questions that follow :



(i) Identify the stage of cell division.

(ii) Name the parts labelled A, B, C and D.

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

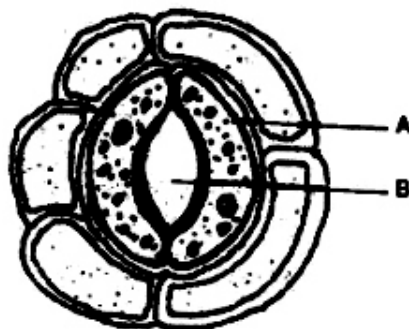
(iv) Where does this type of cell division usually occur ?

(v) How many daughter cells are formed from this type of cell division ?

[5]

(vi) Is the dividing cell shown a plant or an animal cell ? Give a reason to support your answer.

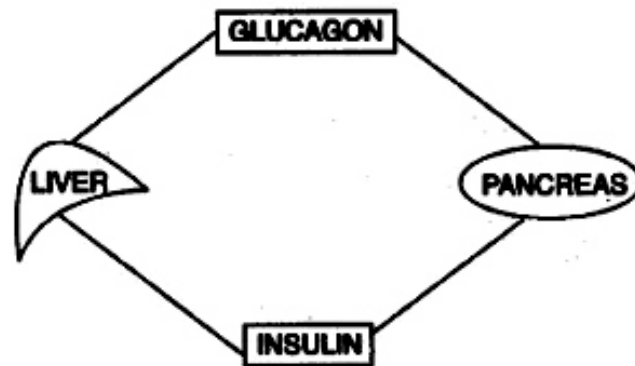
(b) The diagram below represents a structure found in a leaf. Study the same and answer the questions that follow :



- (i) Name the parts labelled A and B.
- (ii) What is the biological term for the above structure ?
- (iii) What is the function of the parts labelled A ?
- (iv) Mention two structural features of A, which help in the function mentioned in (iii) above.
- (v) Where is this structure likely to be found in a leaf ?
- (vi) The above structure helps in the process of transpiration Explain the term transpiration.
- (vii) How many other cells are found surrounding this structure as seen in the diagram.

[5]

3. (a) Study the diagram given below and then answer the questions that follow :



- (i) Name the cells of the pancreas that produce (1) glucagon (2) insulin.
- (ii) State the main function of (1) glucagon (2) insulin.
- (iii) Why is the pancreas referred to as an exo-endocrine gland ?
- (iv) Why is insulin not given orally but is injected into the body ?
- (v) What is the technical term for the cells of the pancreas that produce endocrine hormones ?
- (vi) Where in the body is the pancreas located ?

[5]

- (b) With reference to the functioning of the eye, answer the questions that follow :

- (i) What is meant by power of accommodation of the eye ?
- (ii) What is the shape of the lens during (1) near vision. (2) distant vision ?
- (iii) Name the two structures in the eye responsible for bringing about the change in the shape of the lens.
- (iv) Name the cells of the retina and their respective pigments which get activated (1) in the dark (2) in light.

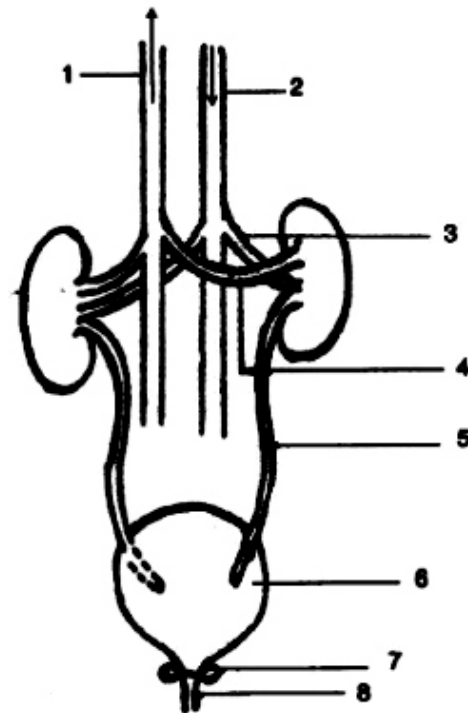
[5]

INFINITY ROOTS

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4. (a) The diagram below shows the Excretory System of a Human being. Study the same and then answer the questions that follow :



(i) Name the parts labelled 1, 2, 3 and 4.

(ii) Give the main function of the parts labelled 5, 6, 7 and 8.

(iii) Name the endocrine gland which could be added in the diagram and state its location/position.

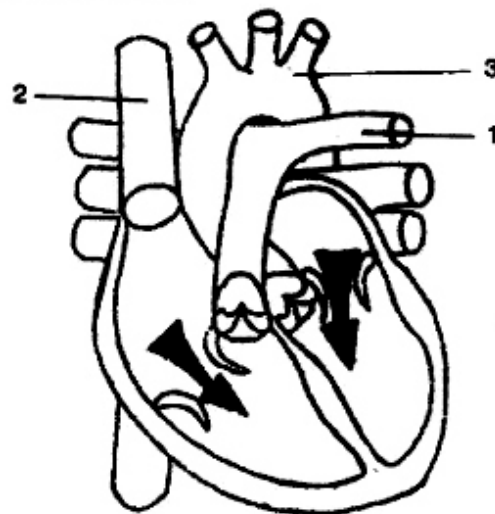
[5]

(b) Briefly explain the following :

(i) Osmosis (ii) Allele (iii) Pulse (iv) Reflex action (v) Synapse

[5]

5. (a) The diagram given below represents the human heart in one phase of its functional activities. Study the same and answer the questions that follow :



(i) Name the phase.

(ii) Label the parts 1, 2, and 3

(iii) Which part of the heart is contracting in this phase ? Give a reason to support your answer.

(iv) Draw well labelled diagrams of part 1 and 2 to show the structural differences between them.

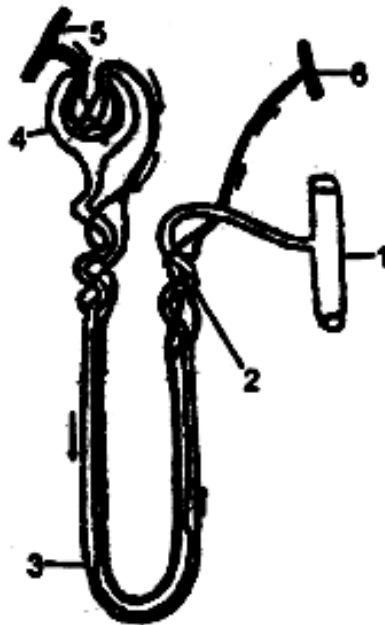
[5]

(b) Give biological reasons for the following :

- (i) The wall of the ventricle is thicker than the auricles.
- (ii) The renal cortex has a dotted appearance.
- (iii) Wooden frames of doors get jammed during the monsoon season.
- (iv) Throat infections can lead to ear infections.
- (v) The hand automatically shows the direction to turn a cycle without thinking.

[5]

6. **(a) The given diagram represents a nephron and its blood supply. Study the diagram and answer the following questions :**



- (i) Label parts 1, 2, 3 and 4.
- (ii) State the reason for the high hydrostatic pressure in the glomerulus.
- (iii) Name the blood vessel which contains the least amount of urea in this diagram.
- (iv) Name the two main stages of urine formation.
- (v) Name the part of the nephron which lies in the renal medulla.

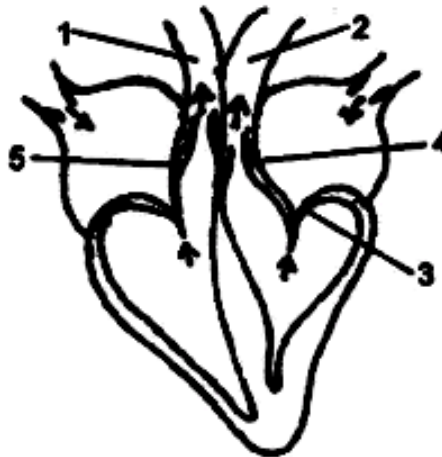
[5]

(b) Briefly explain the following terms:

- (i) monohybrid cross.
- (ii) Biomedical waste
- (iii) Innate immunity.
- (iv) Diapedesis
- (v) Hormones.

[5]

7. (a) The diagram given alongside represents the human heart in one phase of its functions. Study the diagram carefully and answer the questions that follow :



- (i) Name the phase.
- (ii) Which part of the heart is contracting in this phase ? Give a reason to support your answer.
- (iii) Name the parts labelled 1 to 4.
- (iv) What type of blood flows through '2' ?
- (v) State the function of the part numbered '5' ?
- (vi) Name the membrane that covers the heart.

[5]

(b) Explain the following terms :

- (i) Greenhouse effect.
- (ii) Turgor pressure.
- (iii) Selective reabsorption.
- (iv) Natality.
- (v) Pulse.

[5]

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Focus : CBSE | NTSE | Olympiads | Foundation of IIT/NEET

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SOLUTIONS

Section-I

1. **Answer:**

- (a) (i) Nuclear Membrane
- (ii) Vitreous humour
- (iii) Stroma.
- (iv) Genes
- (v) Acetylcholine

(b) Water enters the root hair from the soil by the process of Endosmosis. This is because the solution in the soil is hypotonic whereas the cell sap in the root hair cell is hypertonic. The water then passes through the cortical cells by cell to cell osmosis and reaches the xylem of the root.

(c) (i) Destarched plant → washed in water → a leaf boiled in alcohol → placed in sunlight → Iodine added.

(ii) Interphase → Prophase → Metaphase → Anaphase → Telophase.

(iii) Seminiferous tubule → Epididymis → Vas deferens → Urethra → Penis.

(iv) Pinna → auditory canal tympanum → ear ossicles → cochlea.

(v) Soil water Root hair → Cortex → Endodermis Xylem.

(d) (i) The alpha cells of the pancreas secrete glucagon.

(ii) Duplicated chromosomes remain attached at a point termed centromere.

(iii) True.

(iv) Penicillin obtained from a fungus is an example of an antibiotic.

(v) Plants that manufacture their own food are termed autotrophs.

(e) (i) Corpus luteum and secretion of progesterone.

(ii) Iris of the eye and regulates the amount of light entering the eye.

(iii) Seminal vesicle and semen.

(iv) Phloem and photosynthesis.

(v) Eustachian tube and balancing the air pressure on either side of the eardrum.

(f) (i) Transpiration.

(ii) 'Loss of water as water vapour from the aerial parts of the plant is called as transpiration'.

(iii) Covering the pot with a plastic sheet would prevent the escape of water vapour from the pot.

(iv) Transpiration helps in the ascent of sap by producing a suction force acting from the top of a plant.

(v) A similar empty plastic sheet with its mouth tied, with no potted plant kept in sunlight will show no drops of water.

- (h) (i) **Destarched Plant:** A plant from the leaves of which starch has been removed. This can be done by placing the plant in the dark for 24 to 48 hours.
- (ii) **Phenotype:** The expressed character which is genetically controlled.
Example : Tall pea plants (genotype TT or Tt), dwarf pea plant (genotype tt). So this expressed tallness or dwarfness is called as phenotype.
- (iii) **Death Rate:** This is also called as mortality. It is the number of death per 1000 of population per year.
- (iv) **Power of Accommodation of the eye:** The process of focussing the eye at different distances is called as power of accommodation of the eye.
- (v) **Natural Immunity:** This is also called as native or innate immunity. This immunity is by virtue of genetic constitutional make up. It is there in the body without any external stimulation of a previous infection.

2.

Answer:

Section-II

(a) (i) Anaphase.

(ii) Part A = Spindle Fiber

Part B = Cell wall

Part C = Chromatid

Part D = Centromere

(iii) Unique feature of this stage : Chromosomes divide into two parts and chromatids are separated which moves towards opposite pole.

(iv) Somatic cells.

(v) Two daughter cells are formed from this kind of cell division.

(vi) Dividing cell shown here is a plant cell because cell wall is clearly visible here which is a unique feature of the plant cells.

(b) (i) Part A = Guard Cells. Part B = Stoma.

(ii) Biological term for the above structure is stomata.

(iii) Part labelled A, i.e., guard cells control the opening and closing of stomata.

(iv) 1. Guard cells are structurally bean shaped.

2. Wall of guard cells are differently thick. It has inner wall facing towards the stomatal pore is thick and outer wall is thin. By changing the turgidity and flaccidity, guard cells control the opening and closing of stomata.

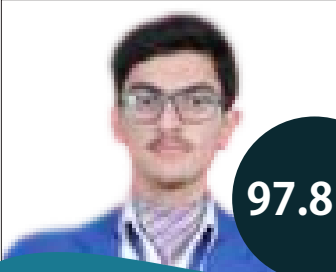
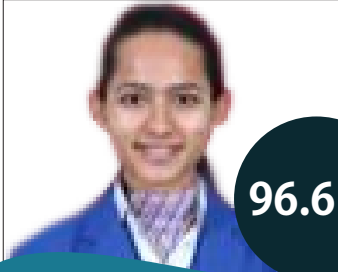
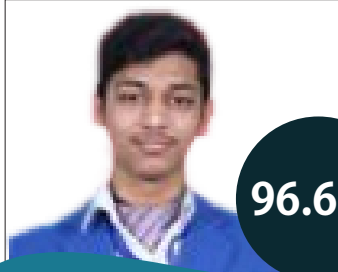



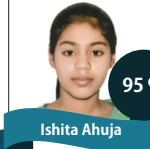



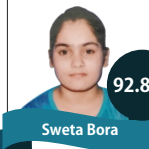


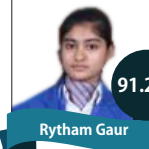


(v) This structure is more likely to be found on the lower epidermis of the leaves.

(vi) Plants absorb a large amount of water from the soil but only a fraction of it is used by plants and most of this absorbed water is lost from the aerial parts of the plant in the form of water vapour. It is called transpiration.

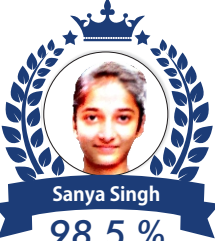













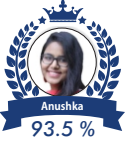




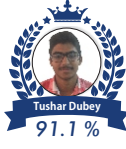

(vii) There are five (5) other cells surrounding this structure.

CBSE TOPPERS of 2019

CLASS XII

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