



# BRAIN INTERNATIONAL SCHOOL

SESSION 2024-25

CLASS: X

REVISION- SHEET

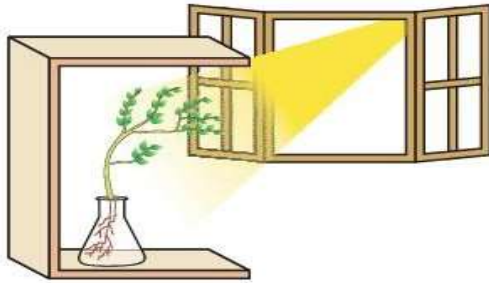
SUBJECT: BIOLOGY

Section-A

Question 1 to 16 are multiple choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.

- 1 Which of the following is NOT a raw material required for photosynthesis?
  - a) Carbon dioxide
  - b) Water
  - c) Oxygen
  - d) Sunlight
  
- 2 Which of the following is the correct equation for aerobic respiration?
  - a) Glucose + Oxygen  $\rightarrow\rightarrow$  Carbon dioxide + Water + Energy
  - b) Carbon dioxide + Water + Energy  $\rightarrow\rightarrow$  Glucose + Oxygen
  - c) Glucose + Carbon dioxide  $\rightarrow\rightarrow$  Water + Oxygen + Energy
  - d) Oxygen + Water  $\rightarrow\rightarrow$  Glucose + Carbon dioxide + Energy
  
- 3 Which of the following is the correct pathway of air during inhalation?
  - a) Nose/mouth  $\rightarrow\rightarrow$  trachea  $\rightarrow\rightarrow$  bronchi  $\rightarrow\rightarrow$  bronchioles  $\rightarrow\rightarrow$  alveoli
  - b) Alveoli  $\rightarrow\rightarrow$  bronchioles  $\rightarrow\rightarrow$  bronchi  $\rightarrow\rightarrow$  trachea  $\rightarrow\rightarrow$  nose/mouth
  - c) Nose/mouth  $\rightarrow\rightarrow$  bronchi  $\rightarrow\rightarrow$  trachea  $\rightarrow\rightarrow$  bronchioles  $\rightarrow\rightarrow$  alveoli
  - d) Alveoli  $\rightarrow\rightarrow$  bronchi  $\rightarrow\rightarrow$  trachea  $\rightarrow\rightarrow$  bronchioles  $\rightarrow\rightarrow$  nose/mouth
  
- 4 Identify which of the following statements about thyroxin is incorrect?
  - a) Thyroid gland requires iodine to synthesize thyroxin.
  - b) Thyroxin is a hormone produced from thyroid.
  - c) It regulates protein, carbohydrates and fat metabolism in the body.
  - d) Iron is essential for the synthesis of thyroxin.

- 5 Raghav potted some germinated seeds in a pot. He put the pot in a cardboard box that was opened from one side. He keeps the box in a way that the open side of the box faces sunlight near his window. After 2-3 days, he observes the shoot bends towards the light, as shown in the image.



- Which type of tropism does he observe?
- a) Geotropism
  - b) Phototropism
  - c) Chemotropism
  - d) Hydrotropism
- 6 Which parts of the brain control blood pressure?
- a) Spinal cord, skull, hypothalamus
  - b) Cord, skull, cerebrum
  - c) Pons, medulla, cerebellum
  - d) Pons, medulla, cerebrum
- 7 The ability of a cell to divide into several cells during reproduction in Plasmodium is called
- a) budding
  - b) multiple fission
  - c) binary fission
  - d) reduction division
- 8 Vegetative propagation refers to formation of new plants from
- a) stem, flowers and fruits
  - b) stem, leaves and flowers
  - c) stem, roots and flowers
  - d) stem, roots and leaf

- 9 The process of release of eggs from the ovary is called
- menstruation
  - reproduction
  - insemination
  - ovulation
- 10 The process in which small portions of the oviducts of a woman are removed by surgical operation, and the cut ends are ligated is
- copper T
  - tubectomy
  - vasectomy
  - diaphragm
- 11 If a normal cell of human body contains 23 pairs of chromosomes, then the numbers of chromosomes in a sex cell of a human being is most likely to be:
- 60
  - 23
  - 22
  - 40
- 12 The genetic makeup of an organism is called its:
- Genotype
  - Phenotype
  - Allele
  - Chromosome
- 13 Which of the following is not controlled by genes?
- Eye colour
  - Height
  - Hair colour
  - All of the above
  - None of the above
- 14 In a given food chain if frog has 100 J of energy then the energy available with plants and snake respectively will be
- Plants → Insect → Frog → Snake
- 1000J and 10J
  - 10000J and 10J
  - 10 J and 1000J
  - 100J and 10J

- 15 Which of the following groups contain only biodegradable items?  
a). grass, flowers, aluminium foil  
b). grass, wood, plastics  
c). fruit peels, glass and lime juice  
d). vegetables, wood, grass
- 16 Depletion of ozone is mainly due to \_\_\_\_\_  
a. chlorofluorocarbons  
b. sulphur dioxide  
c. acid rain  
d. greenhouse effect

Question No. 17 to 20 consist of two statements – Assertion (A) and Reason (R). Answer these questions by selecting the appropriate option given below:

- A. Both A and R are true, and R is the correct explanation of A.  
B. Both A and R are true, and R is not the correct explanation of A.  
C. A is true but R is false.  
D. A is false but R is true

17 Assertion: Oral pills kill sperms  
Reason: Spermicides kill sperms

18 Assertion: The second trophic level of a food chain operating in a grassland is mostly occupied by a herbivore.  
Reason: Carnivores feed upon herbivores and are secondary consumers.

19 Assertion: In plants there is no need of specialised respiratory organs.  
Reason: Plants do not have great demands of gaseous exchange.

20 Assertion: Insulin regulates blood sugar level.  
Reason: Insufficient secretion of insulin will cause diabetes.

#### Section B

Question No. 21 to 26 are very short answer questions

- 21 Give the main function of ozone layer present in the atmosphere. What are the main causes of ozone layer depletion?
- 22 What happens when  
a) accidentally, Planaria gets cut into many pieces?  
b) sporangia of Rhizopus bursts on reaching maturation?

- 23 *Attempt either option A or B*  
A. How does our body respond when adrenaline is secreted into the blood?

OR

- B. Write the function of the following hormones

Thyroxine  
Growth hormone  
Estrogen  
Insulin

- 24 In one of his experiments with pea plants Mendel observed that when a pure tall pea plant is crossed with a pure dwarf pea plant, in the first generation, F<sub>1</sub> only tall plants appear.  
(a) What happens to the traits of the dwarf plants in this case?  
(b) When the F<sub>1</sub> generation plants were self-fertilised, he observed that in the plants of second generation, F<sub>2</sub> both tall plants and dwarf plants were present. Why it happened? Explain briefly.
- 25 Name the plant hormones responsible for the following phenomenon:  
(i) Growth of stem  
(ii) Promotion of cell division  
(iii) Inhibition of growth  
(iv) Ripening of fruits

OR

What is reflex action? Draw a reflex arc.

- 26 Study the following picture and answer the questions that follow:



E.

- a) What changes do you find in the concentration of the pesticide DDT in the given food chain?  
b) Explain this phenomenon briefly.

### Section C

Question No. 27 to 33 are short answer questions

27 Study the given figure and answer the questions that follow:



- a) Name the plant shown in this figure. What type of movement is indicated by this plant when it is touched – movement involving growth or movement without involving growth?
- b) How do the leaves of this plant fold in response to touch? Briefly explain the mechanism involved.

28 *Attempt either option A or B.*

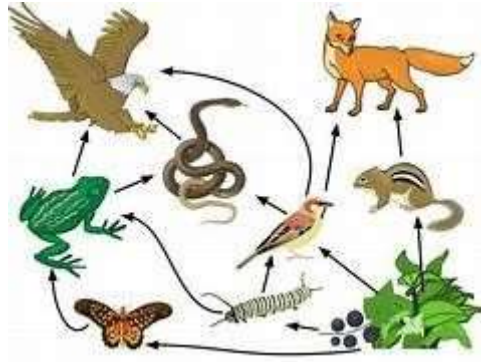
- A. (i) State the law of independent assortment.  
(ii) How is sex determination done in human beings?

OR

- B. (i) Why did Mendel choose garden pea in his experiment?  
(ii) Explain the law of segregation with the help of a suitable example

- 29 a) Draw a diagram of nephron and label on it the following parts.  
i) Bowman's capsule  
ii) Loop of Henle  
iii) Collecting duct  
iv) Glomerulus  
b) Write the function of nephrons present in the kidney of human beings.

- 30 In pea plant, round seed is dominant over the wrinkled seed. If a cross is carried out between pure plant with round seed and pure plant with wrinkled seed, give answer to the following questions.  
i) Mention the genotypes of both the parents.  
ii) State the trait/character of  $F_1$  hybrid  
iii) Write the ratio of  $F_2$  progeny obtained from this cross. What is the name of this type of cross?



Study the above figure and answer the following questions:

- a) What is depicted by the given figure? Define this phenomenon.
- b) In natural ecosystem such type of interactions are commonly observed. Explain this statement.

- 33
  - a) How are diseases like gonorrhoea and syphilis transmitted? What is the name given to such types of diseases?
  - b) Explain how copper T (CuT) acts as contraceptive device.
  - c) How does oral contraceptive pills help in prevention of unwanted pregnancies in female?

### Section D

Question No. 34 to 36 are long answer questions.

34

*Attempt either A or B*

- A. (i) Which is the largest and most prominent part of the brain?  
(ii) Name one gustatory receptor and one olfactory receptor in human beings.  
(iii) Write the main functions of the following :  
(a) sensory neuron  
(b) cranium  
(d) motor neuron.

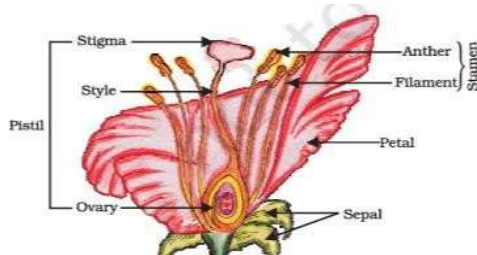
OR

- B. (i) Draw a neat labelled diagram of human brain showing 5 important parts.  
(ii) Name an important hormone produced by the pancreas. Give its function. What will happen if this hormone is not produced by the pancreas in proper amount.

35

*Attempt either A or B*

A. The labelled diagram of a flower is given below

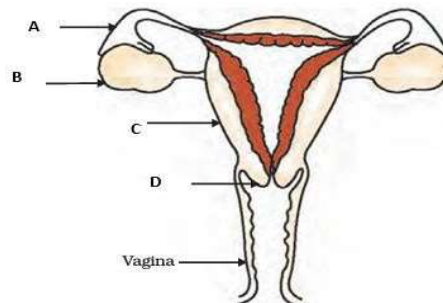




- i) Where is the egg cell present in a flower?
- ii) After fertilisation the ovule develops into \_\_\_\_\_
- iii) What is the function of stigma?
- iv) Write the parts of an embryo.
- v) Give an example of unisexual flower

OR

B) Observe the diagram of human female reproductive system and answer the questions



- i) Label A, B, C and D
- ii) Write the function of B
- iii) What will happen if the egg is not fertilised
- iv) Name the two hormones secreted by A.

36

*Attempt either A or B*

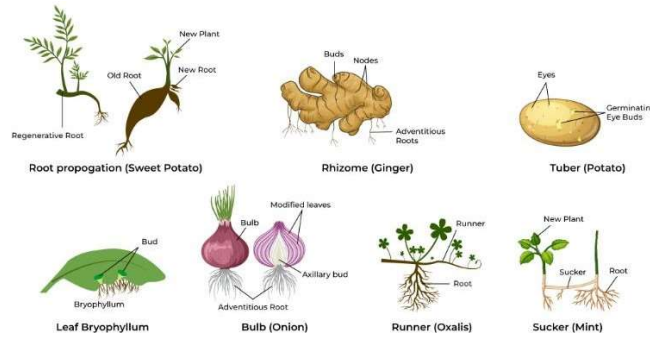
A. (i) Explain the process of transportation of water in plants.  
 (ii) Which tissue in plants are responsible for the translocation of solute?  
 Mention two differences between water transportation and solute translocation in plants.

OR

B. (i) Briefly explain the step-wise processes involved in the digestion of starch and protein in different parts of the alimentary canal.  
 (ii) What is the role of bile produced by the liver?

Section E

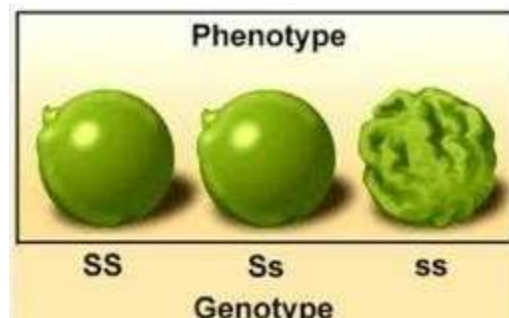
Question No. 37 to 39 are case-based/data -based questions.



There are many plants in which parts like the root, stem and leaves develop into new plants under appropriate conditions. Unlike in most animals, plants can indeed use such a mode for reproduction. This property of vegetative propagation is used in methods such as layering or grafting to grow many plants like sugarcane, roses, or grapes for agricultural purposes.

- What are the advantages of vegetative propagation?
- Give an example of a plant showing vegetative propagation through leaf.
- Name a plant that can be propagated through grafting.
- If you are asked to plant a lemon plant using seed or using a stem cutting, which method will you select? Why?

- 38 Pure bred pea plant with smooth seeds (dominant characteristic) were crossed with pure bred pea plant with wrinkled seeds (recessive characteristic) . The F1 generation was self pollinated to give rise to the F2 generation.



- What is the expected observation of the F1 generation of plants?
- Mention the genotype of the parent having smooth seed taken in this experiment.
- What is the expected observation of the F2 generation of plants ?
- What will be the genotypic ratio of F2 offspring , also mention whether it will be homozygous or heterozygous ?

39

We need energy to perform various activities. This energy is derived from the catabolism of various components of food, e.g., proteins, carbohydrates, fats, etc. Oxygen is required for catabolic processes and carbon dioxide is released in the process. So, the body requires a continuous exchange of gases, oxygen from the atmosphere is taken inside and carbon dioxide produced is given out. In human beings, respiratory pigment called haemoglobin present in RBCs has very high affinity for oxygen. In tissues, exchange of gases occurs between oxygenated blood and tissue cells.

- A. Where does the exchange of gases take place in the human respiratory system?
- B. People living in high altitude have higher RBC concentration. Justify.
- C. What is the role of haemoglobin in the process of respiration?
- D. If the muscle cells work excessively under insufficient oxygen supply what will happen?
- E. Where does the exchange of gases take place in the human respiratory system?
- F. People living in high altitude have higher RBC concentration. Justify.
- G. What is the role of haemoglobin in the process of respiration?
- H. If the muscle cells work excessively under insufficient oxygen supply what will happen?
- I. Where does the exchange of gases take place in the human respiratory system?
- J. People living in high altitude have higher RBC concentration. Justify.
- K. What is the role of haemoglobin in the process of respiration?
- L. If the muscle cells work excessively under insufficient oxygen supply what will happen?