SNS ACADEMY

REVISION FULL PORTION - BIOLOGY

10th Standard

Date : 04-Dec-23

Reg.No. : | | | | | | |

Science

Time : 00:45:00 Hrs

Total Marks : 30

SECTION A

7 x 1 = 7

1) The filtration units of kidneys are called

(a) Ureter (b) Urethra (c) Neurons **(d) Nephrons**

2) Lack of oxygen in muscles often leads to cramps among cricketers. This results due to

(a) Conversion of pyruvate to ethanol (b) Conversion of pyruvate to glucose

(c) Non conversion of glucose to pyruvate **(d) Conversion of pyruvate to lactic acid**

3) Electrical impulse travels in a neuron from

(a) Dendrite → axon → axonal end → cell body (b) Cell body → dendrite → axon → axonal end

(c) Dendrite → cell body → axon → axonal end

(d) Axonal end → axon → cell body → dendrite

4) Peripheral nervous system constitutes:

(a) Neurons and cranial nerves **(b) Cranial and spinal nerves** (c) Backbone and brain

(d) Neurons and brain

5) The simple animals like Plana ria can be cut into a number of pieces and each piece grows into a complex organism. What is the process known as?

(a) Budding (b) Fragmentation (c) Spore formation **(d) Regeneration**

6) What is the probability that a human progeny will be a boy

(a) 50% (b) 56% (c) 47.34% (d) It varies

7) Which of the following is an example of non-biodegradable substance?

(a) Virgin plastic **(b) Plastic** (c) Plants (d) Plant products

SECTION A1

2 x 1 = 2

8) **Assertion**: The movement of water and dissolved salts in xylem is always upwards.

Reason: The upward movement of water is due to low pressure created by transpiration.

Codes

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

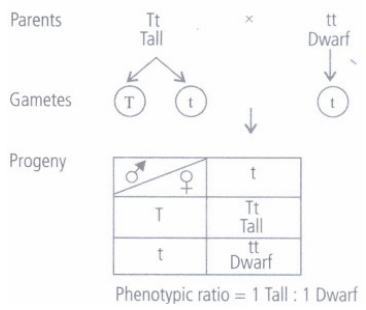
(c) A is true but R is false.

(d) A is false but R is true.

Answer : (a): The plants take in water (containing dissolved minerals) from the soil through their roots. This water, called xylem sap is carried by the xylem vessels to all the. parts of the plant. The xylem vessels of the root of the plant are crmnected to the xylem vessels of its stem. So, the water (containing dissolved minerals) enters from the root xylem vessels into stem xylem vessels. The xylem vessels of the stem branch into the leaves of plants. So, the water and minerals carried by the xylem vessels in the stem reach the leaves through branched xylem vessels. Since the cells of the leaf are losing wafer by transpiration, so water from the xylem vessels in the leaf will travel to the cells by osmosis to make up this loss of water. Thus, water is constantly being taken away from the top of the xylem vessels in the leaves thus reduces the effective pressure at the top of the xylem vessels. The pressure at the top of the xylem vessels (in the leaves) is lowered whereas the pressure at bottom of the xylem vessels remains high. Due to this water flows up the xylem vessels.

9) **Assertion:** A heterozygous tall plant when crossed with homozygous dwarf plant will produce tall and dwarf plants in the ratio of 3 : 1.
Reason: A heterozygous tall plant will produce two types of gametes, i.e., one with T and other with t whereas homozygous dwarf plant produce all gametes with t only.
Codes:
(a) Both A and R are true and R is correct explanation of the assertion
(b) Both A and R are true but R is not the correct explanation of the assertion
(c) A is true but R is false
(d) A is false but R is true.

Answer : (d): A heterozygous tall plant when crossed with dwarf plant will give following result.



SECTION B 3 x 2 = 6

10) What are the components of the transport system in highly organised plants?

Answer : The main components of the transport system in highly organised plants are xylem and phloem. Xylem consists of tracheids and vessels which conduct water and minerals (obtained from the soil) to the leaves. Phloem consists of sieve tubes and companion cells. It helps to transport food, amino acids, hormones, etc., from leaves to various parts of the plant.

11) What is reflex action? Describe the steps involved in a reflex action

Answer : It is an unconscious automatic and involuntary response.
Steps involved in reflex action
(i) Receptors receive the stimulus.
(ii) Nerve cell takes the stimulus, converts it into electrical signal and passes it through sensory nerve.
(iii) The impulse passes through spinal cord where it gets transmitted through relay neuron and it passes further through motor neuron to the effector organ i.e., muscles.

12) A new born has an XX pair of chromosomes. What is the sex of the new born baby?

Answer : Female baby

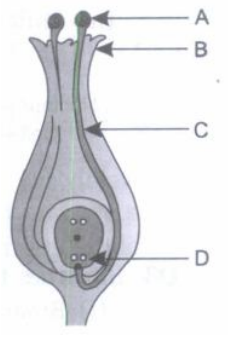
SECTION C 2 x 3 = 6

13) What are hormones? State one function of each of the following hormone
(i) Thyroxin
(ii) Insulin.

Answer : Hormones are chemicals released by endocrine gland.
(i) Thyroxine helps in the metabolism of carbohydrates, proteins and fats.
(ii) Insulin helps in regulating sugar level in the blood.

14) (a) List two reasons for the appearance of variations among the progeny formed by sexual reproduction.
(b) (i) Name the part marked 'A ' in the diagram.

(ii) How does 'N.reaches part 'B'?
(iii) State the importance of the part 'C'.
(iv) What happens to the part marked 'D' after fertilisation is over?

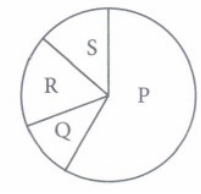


Answer : (a) (i) Involvement of two different individuals
(ii) Creation of new combination of variants
(b) (i) Pollen/pollen grain
(ii) By pollination/agents of pollination
(iii) It (pollen tube) helps male gamete to reach egg (ovule)
(iv) Converts into embryo.

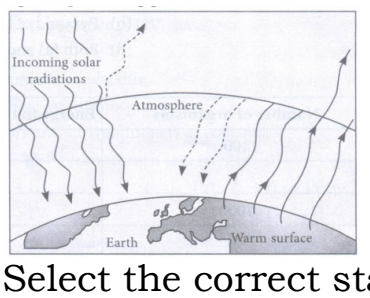
SECTION D

1 x 4 = 4

15) Various components of an ecosystem maintain a balance in nature. Disturbance in any component of the environment cause an imbalance. One of the main environmental problem caused by human activities is global warming. Global warming is a phenomenon caused by the increasing concentration of greenhouse gases in the atmosphere resulting due to enhanced greenhouse effect.
(i) Refer to the given pie chart showing the contribution of different gases to global warming.



Identify gases P, Q, Rand S and select the incorrect statement regarding them.
(a) P could be a gas that increases in atmosphere due to excessive use offossil fuel.
(b) Q could be a gas produced by complete combustion of biomass.
(c) R could be synthetic gaseous compounds used as refrigerants in air conditioners and refrigerators.
(d) S could be a gas produced by combustion of nitrogen rich fuel.
(ii) What could not be a source of gas Q given in the above pie chart?
(a) Flooded paddy field **(b) Cattle**
(c) Jet fuel **(d) Marshes**
(iii) If there is no CO_2 in the atmosphere, then what will be the most likely consequence of this on the temperature of earth?
(a) The temperature remain unchanged as it depends upon the oxygen content of the atmosphere.
(b) The temperature would increase as less greenhouse gases will be absorbed by CO_2
(c) The temperature would decrease as CO_2 is the principal greenhouse gas.
(d) None of these
(iv) Study carefully the following figure representing greenhouse effect.



Select the correct statement regarding this.
(a) Much of the long wavelength infrared radiations re-radiated by the earth's surface are absorbed by the atmospheric greenhouse gases.
(b) CO_2 , CH_4 , CFCs and N_2O are the gases which are responsible for greenhouse effect.
(c) The atmosphere is transparent to the incoming short-wavelength radiations and is translucent to the long-wavelength infra-red radiations.
(d) All of these (v) Greenhouse effect is due to

(a) accumulation of O_3 and depletion of CO_2
(b) accumulation of both O_3 and CO_2
(c) accumulation of CO_2 and depletion of O_3
(d) presence of green plants on the earth

Answer : **(i) (b) :**In the given pie chart, gases P, Q, Rand S respectively are CO_2 , CH_4 , CFCs and N_2O. Methane is produced by incomplete combustion of biomass.
(ii) (c): Methane (gas Q) is produced by incomplete biomass combustion and incomplete decomposition mostly by anaerobic methanogens. Flooded paddy fields, marshes and cattles are the major source of this gas.
(iii) (c) : CO_2 is the principal greenhouse gas that helps to keep the earth warm.
(iv) (d)
(v) (c)

SECTION E (EITHER OR TYPE) 1 x 5 = 5

16) Explain the important of soil for plant growth.

Answer : (i)Anchoring the plant
(ii)Source of water and minerals
(iii)Availability of oxygen for respiration of root cells
(iv)Symbiotic association with microbes.

17) (i) What is genetics?
(ii) Give the common name of the plant on which Mendel performed its experiments