PRE- BOARD EXAMINATION (2019-2020)

GRADE:X CBSE TOTAL MARKS: 80

SCIENCE

DATE: _____ TIME: 3hrs

General Instructions:

(i) The question paper comprises of three sections-A, B and C. Attempt all the sections.

(ii) All questions are compulsory.

(iii) Internal choice is given in each section.

(iv) All questions in Section **A are one-mark questions** comprising MCQ, VSA type and assertion reason type questions. They are to be answered in one word or in one sentence.

(v) All questions in **Section B are three-mark**, short-answer type questions. These are to be answered in about 50-60 words each.

(vi) All questions in **Section C are five-mark**, long-answer type questions. These are to be answered in about 80-90 words each.

(vii) This question paper consists of a total of 30 questions.

SECTION A

1. Which of the following limits the number of trophic levels in a food chain? [1]
   a) Water
   b) Polluted air
   c) Deficient food supply
   d) Decrease in energy at higher trophic levels.
2. If a round green seeded plant is (**RRYY)** is crossed with wrinkled yellow seeded pea plant (**rryy**) the seed to be produced in F1 generation will be [1]
   a) Wrinkled and yellow
   b) Round and green
   c) Wrinkled and green
   d) Round and yellow.
3. **Answer question numbers 3.1-3.4 on the basis of your understanding of the following paragraph and the related studied concepts**.
   The leaf is the main photosynthetic organ in a plant. It controls gas exchange in plants, controls the amount of water loss in plants. Upper epidermis cells contain no chloroplasts – which is not true for the guard cells. They form layers on the upper and lower surface of the leaf. Their function is to prevent water from getting out and stopping unwanted substances/organisms getting in. The palisade mesophyll layer is where most of the photosynthesis occurs in the leaf. The palisade cells contain a lot of chloroplasts to help them perform this photosynthesis. Lower

epidermis is the bottom layer of the leaf, and is one cell thick. They may not contain a cuticle within the lower epidermis, there are some holes found in leaves called stoma. These holes allow gases to diffuse in and out of the leaves. The stoma are formed by two highly specialized epidermis cells, called guard cells. Guard cells are the only epidermis cells that contain chloroplasts.

3.1 Mention two function of lower epidermis. [1]

3.2 Where are chloroplasts present in the leaf? [1]

3.3 What are the functions of xylem and phloem in leaf? [1]

3.4 List one structural and one functional difference between upper and lower epidermis[1

4.Question number 4.1–4.4 are based on the two tables given below study these table related to atomic number and electronic configuration and answer that follows

Table – A

Element	Atomic number	Electronic Configuration
H	1	1
He	2	2
Li	3	2,1
Be	4	2,2
B	5	2,3

Table – B

Student	Element	Electronic configuration
Student A	C	2, 4
	N	2, 5
	O	2, 6
Student B	F	2, 7
	Ne	2, 7
	Na	2, 8, 1

4.1 In the table B which student write the incorrect electronic configuration and write the its name?

4.2 How many shells are used to write the electronic configuration of element? [1]

4.3 The atomic number of sodium is [1]

(a) 11 (b) 13 (c) 14 (d) 9

4.4 If the atomic number of element is 12 than write down it's electronic configuration. [1]

(a) 2, 2, 8 (b) 2, 4, 6 (c) 2, 8, 2 (d) 2, 6, 4

4. Colour of copper sulphate solution is [1]

(a) yellow (b) white (c) green (d) blue

5. A colourless sample was tested with a strip of pH paper. The colour of the strip changed to green. The sample should be

a.tap water b.distilled water c.sodium hydroxide d. lemon juice

6. Hydrogen and iodine reacting together and hydrogen iodide is forming [1]

The above reaction is an example of a :

(a) combination reaction

(b) double displacement reaction

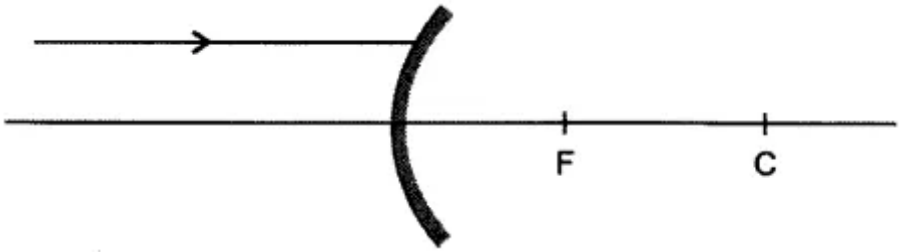
(c) decomposition reaction

(d) displacement reactio

7. Ethanoic acid was added to sodium bicarbonate solution and the gas evolved was tested with a burning splinter Which one of the following four observations is correct?

(a) The gas burns with a pop sound and the fl ame gets extinguished
(b) The gas does not burn but the splinter burns with a pop sound
(c) The fl ame extinguishes and the gas does not burn
(d) The gas burns with a blue fl ame and the splinter burns brightly

8. Which canal has brought the greenery to considerable areas of Rajasthan?
9. A person is advised to wear spectacles with concave lens. What type of defect of vision is he suffering from? [1]
10. Redraw the diagram given below and show the direction of the light ray after reflection from the mirror. [1]



11. Write relation between heat energy produced in a conductor when a potential difference V is applied across its terminals and a current I flows through it for t seconds. [1]

(Q.no 13 to 14) In each of the following questions, a statement of Assertion is given by the corresponding statement of Reason. Of the statements, mark the correct answer as.

(a) If assertion is true and reason is correct explanation of assertion.
(b) If assertion is true but reason is false.
(c) If assertion is false but reason is true.
(d) If both assertion and reason are true and the reason is the correct explanation of the assertion.
(e) If both are false.

12. **Assertion:** The use of iodised salt is advisable.
Reason: Iodine is essential for the synthesis of thyroxine hormone in thyroid gland. [1]
13. **Assertion:**The 200 W bulbs glow with more brightness than 100 W bulbs. [1]
Reason: A 100 W bulb has more resistance than a 200 W bulb.

SECTION B

14. Explain with the help of suitable examples why certain traits cannot be passed on to the next generation. What are such traits called?

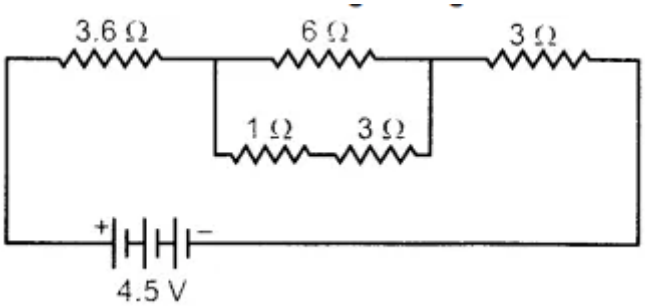
OR

A cross was carried out between a pure-bred tall pea plant and a pure-bred dwarf pea plant and F1 progeny was obtained. Later, the F1 progeny was self-pollinated to obtain, F2 progeny. Answer the following questions.

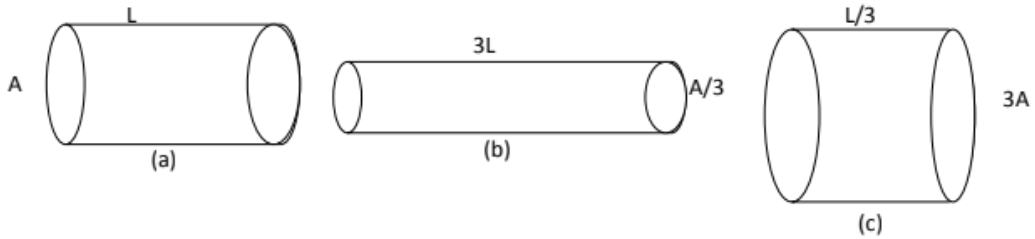
a) What is the phenotype of the F1 progeny and why?
b) Give the phenotype ratio of the F2 progeny.
c) Why is the F2 progeny different from the F1 progeny? [3]

15. How are the fats digested in our bodies? Where does this process take place? [3]
16. What are sexually transmitted diseases? Name four such diseases. Which one of them damages the immune system of human body? [3]

17. An organic compound ‘A’ is an essential constituent of wine and beer. Oxidation of ‘A’ yields an organic acid ‘B’ which is present in vinegar. Name the compounds ‘A’ and ‘B’ and write their structural formula. What happens when ‘A’ and ‘B’ react in the presence of an acid catalyst? Write the chemical equation for the reaction. [3]
18. What is ‘Baking Powder’ ? How does it make cakes soft and spongy ? [3]
19. Write fully balanced equations for the following reactions
    i. Copper (II) oxide and dil. nitric acid
    ii. Aluminium hydroxide and dil. sulphuric acid,
    iii. Magnesium hydrogen carbonate and dil. hydrochloric acid. [3]
20. How far should an object be placed from a convex lens of focal length 20cm to obtain its image at a distance of 30cm from the lens?What will be the height of the image if the object is 6cm tall? [3]
21. Find the current flowing through the following electric circuit. [3]



22. The figure below shows three cylindrical copper conductors along with their face areas and lengths. Compare the resistance and resistivity of the three cylinders .justify your answer.



23. (a) What are the values of (i) Near point and (ii) far point of vision of a normal adult person?
    (b) A student has difficulty in reading the black board while sitting in the last row. What could be his defect of vision? Draw a ray diagram to illustrate the defects of vision.

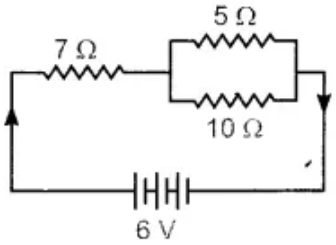
SECTION C

24. Answer the following:[5]
    a) How is zygote formed?
    b) State the function of placenta in the mother’s body.
    c) At what interval the egg is formed in human female ovary?
    d) Name two STDs caused by bacterial infection.
    e) Why is prenatal sex determination prohibited?
25. You have touched a hot object. [5]
    a) Represent diagrammatically the path that leads to a response.
    b) Name the process and path of the process.
    c) How does this process differ from walking? [any two point each]
26. (a) Mention the effect of electric current on which the working of an electrical fuse is based. [5]
    (b) Draw a schematic diagram of a domestic circuit which has a provision of a main fuse, meter, one light bulb and a socket.
    (c) Explain the term overloading of an electric circuit.

OR

(a) Two resistors R_1 and R_2 may form (i) a series combination or (ii) a parallel combination and the combination may be connected to a battery of 6 volts. In which combination, will the potential difference across$R_1$and across R_2be the same and in which combination, will the current through R_1 and R_2be the same ?

(b) For the circuit shown in the diagram, calculate



(i) The resultant resistance

(ii) The total current

(iii) The voltage across 7 ohm resistor.

27. Draw the ray diagram in each case to show the position and nature of the image formed when the object is placed : [5]

(a) At the Centre of curvature of a concave mirror.

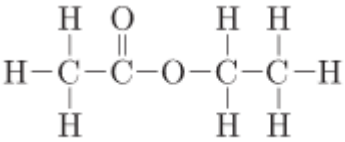
(b) Between the pole and focus F of a concave mirror.

(c) In front of a convex mirror

(d) At 2F of a convex lens

(e) In front of a concave lens

28. i. The structural formula of an ester is



: i)Write the structural formulae of the corresponding alcohol and the acid.

ii.(a) Mention the experimental conditions involved in obtaining ethne from ethanol. (b) Write the chemical equation for the above reaction.

iv. Explain the cleansing action of soap. [5]

OR

State the reason why ?

i. carbon is not used to reduce the oxides of sodium or aluminium.

ii. an iron strip is dipped in a blue copper sulphate solution turns the blue solution pale green.

iii. metals replace hydrogen from acids whereas non-metals do not.

iv. calcium does not occur free in nature.

v. zinc is used in the galvanisation of iron and not the copper. [5]

30. (a) Write the steps involved in the extraction of pure metals in the middle of activity series from their carbonate ores.

(b) How is copper extracted from its sulphide ore? Explain the various steps supported by chemical equations.

Draw labelled diagram for the electrolytic refining of copper. [5]