

ID. : X

MARKS: 50

UB. : SCIENCE

TIME: 2 HRS.

SECTION - A

PBNO3

A. Very short answer: -

1. Explain why, a copper wire cannot be used as a fuse wire. [1]
2. What is a reflex action? [1]
3. What are biodiversity hotspots? (2) [1]

B. Short answer: -

1. What will be the resistance of a metal wire of length 1km and area of cross-section $4.25 \times 10^{-6} m^2$, if the resistivity of the metal is $2.8 \times 10^{-8} \Omega m$. [2]
2. Draw the labeled diagram of an A.C. generator. With the help of this diagram, explain principle and construction. [2]
3. What is hydroelectricity? Explain the basic principle of generation of hydroelectricity with the help of a labeled diagram. [2]
4. Why does it take some time to see objects in dim room when you enter the room from bright sunshine outside? [2]
5. A colourless lead salt when heated gives yellow residue and brown fumes. Name lead salt, identify fumes and write chemical equation of reaction involved. [2]
6. a. Show the formation of MgO by transfer of electrons between combining atoms. [2]
- b. What happens when gypsum is heated to $100^\circ C$? [2]
7. Draw a neat labeled diagram showing fertilization in a flower. [2]
8. Out of respiration and photosynthesis which is anabolic and which is catabolic process. Why? [2]

Q. List the main types of plant hormones. Which of these controls the opening and closing of stomata? [2]

C. Short Answer: -

1. An image formed on a screen is three times the size of the object. The object and screen are 80cm apart when the image is sharply focused. [3]

- a. State which type of lens is used.
- b. Calculate focal length of the lens.

2. Show with the help of diagrams, how you would connect three resistors each of resistance 6Ω , so that the combination has resistance of (a) 9Ω and (b) 4Ω . [3]

3. [3]
a. What are homologous series? Write the next homologous series and name the compound CH_3CH_2CHO .

b. Write what happens when and complete the reaction.
 $CH_3CH_2OH + CH_3CH_2CH_2COOH \rightarrow$

4. The atomic number of an element is 19.

- a. Write its electronic configuration. $(2, 8, 8, 1)$
- b. Give its location in modern periodic table and what is its valency. $+1$
- c. If the element burns in oxygen what will be the nature of its oxide.
- d. Write a balanced chemical equation for the reaction when its oxide is dissolved in water.

5. [3]
a. What are trophic levels? Give an example of a food chain and state different trophic levels in it.

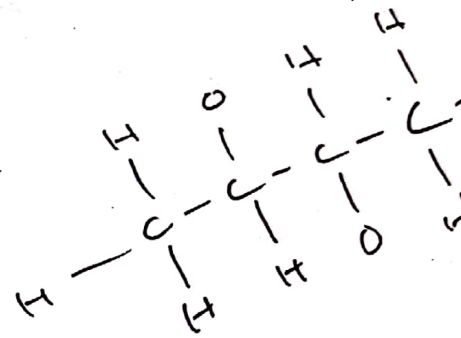
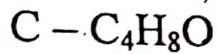
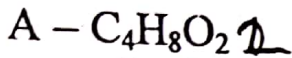
b. What is biological magnification?

D. Long answer: -

1. [5]
a. When an object is placed at a distance of 80cm from a concave spherical mirror, the magnification produced is $-1/3$. Where should the object be placed to get a magnification of $-1/6$?

b. If the power of lens is +2D, then find the focal length of lens.

2. Three organic compounds A, B, C have the following molecular formula [5]



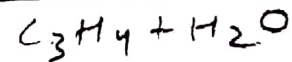
(a) Which compound contains.

(i) Alcohol group

(ii) Carboxyl group

(b) Which molecular formula can represent both aldehyde and ketone? Write the name and the structural formula of aldehyde and ketone represented by this molecular formula.

(c) Two carbon compounds X and Y have molecular formula C_3H_8 and C_3H_6 . Who is likely to show addition reaction? Justify. Explain with the help of a chemical equation.

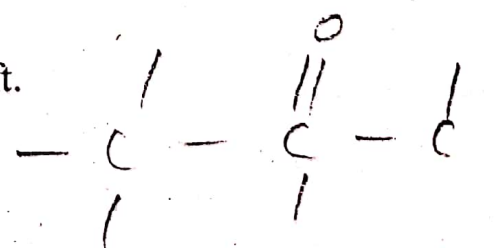


3. (a) A plant has 2 varieties one with red petals and other with white petals. When these 2 varieties are cross pollinated all the offspring's have red petals. If the F1 generation is crossed what result is expected in F2 generation?

[5]

(b) Differentiate between homologous and analogous organs.

(c) Explain the terms natural Selection and Genetic Drift.



Handwritten calculations:

$$\begin{array}{r} 144 \\ 22.67 \\ \times 8 \\ \hline 36.02 \end{array}$$

H ***** H