



# St. Xavier's Sr. Sec. School

Delhi-54

Roll No:

No. of printed pages : 04

No. of questions : 36

Summative Assessment II in **SCIENCE – Std. 10**

Time : 3 hrs.

3-3-2016

General Instructions:

- i) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- ii) All questions are compulsory.
- iii) All questions of Section A and all questions of Section B are to be attempted separately.
- iv) Question nos. 1 to 3 in Section A are of one mark each.
- v) Question nos. 4 to 6 in Section A are of two marks each.
- vi) Question nos. 7 to 18 in Section A are of three marks each.
- vii) Question nos. 19 to 24 in Section A are of five marks each.
- viii) Question nos. 25 – 33 in Section B are multiple choice questions based on practical skills. You are to choose one most appropriate response out of the four provided to you.
- ix) Question nos. 34 to 36 are questions based on practical skills of two marks each.

## SECTION – A

1. What is meant by far point of the eye? (1)
2. Draw the electron dot structure of O<sub>2</sub> molecule. What type of Chemical bond exists in it? (1)
3. Which of the following produce gametes in a flower? (1)  
a) calyx            b) gynoecium    c) corolla            d) androecium
4. What is meant by angle of deviation? List two factors on which it depends. (2)
5. Write the name and molecular formula of an organic compound having its name with Suffix OL and having two carbon atoms in the molecule. With the help of a balanced chemical equation indicate what happens when it is treated with excess of conc. H<sub>2</sub>SO<sub>4</sub>.  
( $\frac{1}{2}$ ,  $\frac{1}{2}$ , 1)
6. Rainfall, forest conservation and depleting forest resources are interlinked with one another. Explain how they are related to one another. (2)
7. Draw a ray diagram to show the use of mirror in headlights of the vehicles. An object of 7cm in height is held 27cm in front of a mirror of focal length 18cm. At what distance from the mirror a screen is to be placed so that a sharp focused image can be obtained? Find the size and nature of the image. (3)
8. Give reasons for the following:  
a) Planets do not twinkle.



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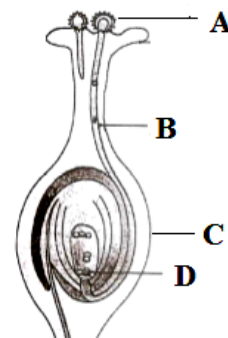
- b) Sky appears dark to an astronaut.  
c) The sun appears white at noon time. (3)
9. a) What is glacial acetic acid?  
b) Name the process of converting vegetable oil to vegetable ghee.  
c) What is esterification reaction? Write a balanced chemical equation to support it. ( $\frac{1}{2}, \frac{1}{2}, 2$ )
10. Quote three instances where human intervention saved the forest from destruction. (3)
11. a) State Newland's Law of Octave.  
b) How many horizontal rows are there in the Modern periodic table and what are they called?  
c) What were the two criteria used by Mendeleev's creating his periodic table? (1,1,1)
12. a) What will be the impact on ecosystems if bacteria, fungi/microorganisms are removed from the environment?  
b) How do the appliances like refrigerators and AC's affect the environment around?  
c) Write any two differences between food chain and food web. (1+1+1)
13. a) How does the embryo get nourishment inside mother's body?  
b) Why cannot fertilisation take place in flowers if pollination does not occur?  
c) Why does bread mould grow profusely on a moist slice of bread rather than on a dry slice of bread? (1+1+1)
14. a) Draw the structure of any two isomers of hexane.  
b) Name the following:  
i) Third member of aldehyde series.  
ii) First member of carboxylic series.  
c) Write any two properties of carbon which lead to the large number of carbon compound. (1,1,1)
15. a) Complete and balance the given equation :  
$$\text{CH}_3\text{COOH} + \text{Na}_2\text{CO}_3 \rightarrow$$
  
b) What are detergents? Why are detergents better cleaning agents? (1,2)
16. a) What is meant by absolute refractive index?  
b) Which of the two is optically denser and why?  
Carbon disulphide (refractive index = 1.63).  
Sapphire (refractive index = 1.77).  
Also calculate speed of light in sapphire. Given speed of light in air =  $3 \times 10^8$  m/s. (1+2)
17. a) What would happen if the ovum is not fertilized?  
b) Differentiate between vasectomy and tubectomy.  
c) How cross pollination is different from self-pollination? (1+1+1)



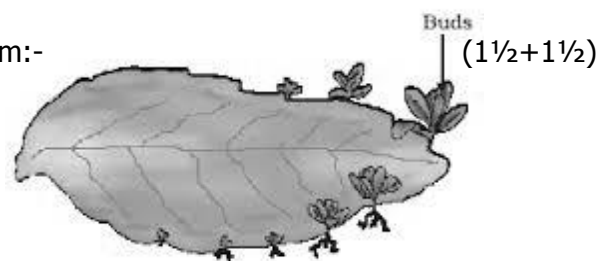
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18. a) Write down the definition of the phenomenon shown here and name the parts labelled as A, B, C, D in the diagram given below:-



- b) Identify the given leaf and explain the process depicted in the following diagram:-



19. a) If the lower half of the convex lens is painted black then how will it affect the formation of image? Explain with a diagram.  
 b) An object is kept at a distance of 100cm from a lens of power -4D. Calculate the image distance.  
 c) Define 1 dioptre of power of a lens. (2+2+1)
20. a) What is meant by accommodation of the eye?  
 b) Name the defect a person is suffering from if he cannot read a book clearly kept as close as 40cm to the eye. What are its causes?  
 c) Draw diagrams to show the defect and its corrections. Also calculate the power of the correcting lens to be used. (1+1+3)
21. a) Define non metallic character. How does it change on moving down in 16<sup>th</sup> group?  
 b) An element has atomic number 15. To which Period and Group of the periodic table will it belong?

- c) Consider the following arrangements of elements:

1	2	13	14	15	16	17	18
Li			Carbon		Oxygen	L	W
Na			G		S	Q	X
K						R	Y
						T	Z

Answer the following:

- Name the family of L Q R T.
- Which is the most reactive metal?
- Which is the biggest size element in group 1?
- Name one element from group 13.



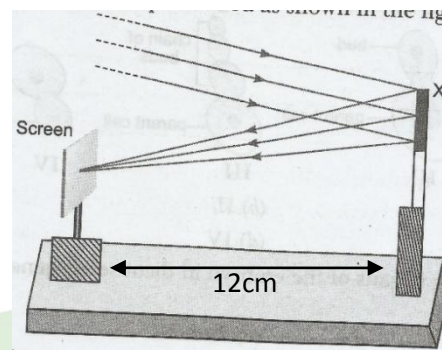
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- v) What is valency of group 15 element?  
vi) What is the nature of Oxide formed by Li? (1,1,3)
22. a) Human resources in India are depleting with increasing number of people getting infected by AIDS virus and it has become a socio economic hazard.  
i) Name the virus which causes AIDS.  
ii) Mention the modes of transmission of AIDS virus.  
iii) What is the effect of AIDS virus on human body?  
iv) Give any two measures to prevent the transmission of aids virus. (1+1+1+2)
23. a) Write the scientific name of the plant which Mendel worked upon. (1+1+3)  
b) Define speciation. What factors could led to rise of a new species?  
c) The genotype of tall pea plants is denoted as TT and that of short pea plants as tt. When these two are crossed?  
i) Which trait do you expect in their F1 progeny?  
ii) In what ratio do you find the genotypes TT and tt in their F2 progeny. Show it with the help of a cross.
24. a) Why are traits acquired during the life time of an individual not inherited?  
b) Give one difference between artificial selection and natural selection with the help of suitable examples.  
c) On the basis of the possibilities of combinations of the sex chromosomes, what percentage probability does a couple have of having a son or a daughter? Show the same by making a cross. (1+2+2)

## SECTION - B

25. Rita took two water samples in test tubes A and B. She added soap solution to both. She observed soap lather in A and no lather in B. She concludes that;  
a) A is hard water. b) B is soft water.  
c) A is soft water. d) Both A and B are hard water. (1)
26. When acetic acid is added to a solution of substance X a colourless and odorless gas Y is formed. The gas Y turns lime water milky. What is substance X?  
a) Sodium Carbonate b) Sodium hydroxide  
c) Sodium acetate d) Lime water (1)
27. The diagram shows the experimental setup to find focal length of device X, then choose the correct option. (1)  
a) Device X is concave mirror of focal length 12 cm.  
b) Device X is convex lens of focal length 12 cm.  
c) Device X is concave mirror of radius of curvature 12 cm.  
d) Device X is concave mirror of focal length 12 cm.



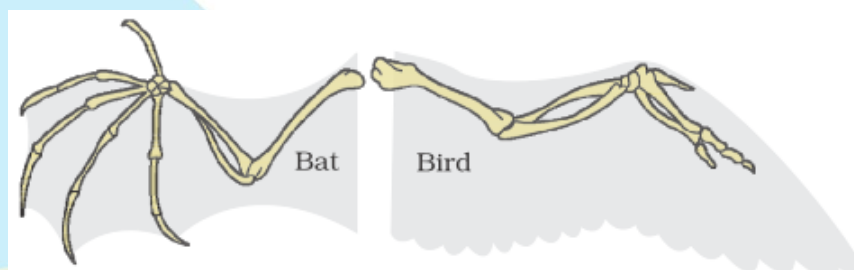




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28. While determining the focal length of a convex lens, you try to focus the image of distant object formed by lens on screen. The image formed on screen as compared to object should be :- (1)
- a) Erect & highly diminished                      b) Erect & Enlarged  
c) Inverted & Enlarged                              d) Inverted & Highly diminished
29. The outgrowth of Hydra is termed as: (1)
- a) Bulb                      b) Bud                      c) Daughter hydra                      d) Tentacles
30. Slides A and B show stages of asexual reproduction in two different organisms. (1)  
The slides A and B are depicting:
- a) Binary fission in both Amoeba and yeast  
b) Budding in both Amoeba and yeast  
c) Binary fission in yeast and budding Amoeba  
d) Binary fission in Amoeba and budding in yeast
- 
31. A solution of soap in water turns; (1)
- a) Blue litmus to Red.                      b) Red litmus to Blue.  
c) Blue litmus to colourless.                      d) Red litmus to colourless.
32. A seed was soaked for 8-10 hours. If the seed can be separated in two parts, what kind of a seed it is? (1)
- a) Can be either a monocot or dicot seed.  
b) Neither a monocot nor a dicot.  
c) A monocot seed.  
d) A dicot seed.
33. A student has obtained an image on screen to determine the focal length  $F_1$  of given lens, then another lens of focal length  $F_2$  is given & for sharp image on screen he has to move the lens away from screen. Choose the correct option:- (1)
- a) Both lenses are concave &  $F_1 < F_2$   
b) Both lenses are convex &  $F_1 < F_2$   
c) Both lenses are concave &  $F_1 > F_2$   
d) Both lenses are convex &  $F_1 > F_2$
34. In an experiment to trace the path of ray of light through rectangular glass slab at  $\angle i = 60^\circ$ . Two students P & Q noted  $\angle r = 42^\circ$  &  $65^\circ$  respectively. Who is correct and why? (2)
35. What is the similarity in the given diagrams? What are such organs called? What do you conclude after your observation? (2)





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36. Draw a ray diagram to show refraction through glass prism. Mark  $\angle i$ ,  $\angle r$ ,  $\angle e$ ,  $\angle A$ ,  $\angle d$ .  
What would happen to sunlight when it passes through glass prism? (2)

-X-X-X-X-X-