



# KJB SCIENCE SCHOOL

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**Test Series : [SCIENCE-X{CBSE}]- CH-PRE- BOARD EXAM {set-B} M.M-90**

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| Kashish Goyal -99  | Astha Nigam-98    | Nidhi Saraswat-98  | Siddesh Tripathi-98 | Nikita Saraswat-97 |
| Saurabh Lalwani-97 | Sweta Sikarwar-97 | Rishabh Singh- 96  | Ishu Yadav-96       | Srijan Mehta -- 95 |
| Rashmi Dhanwani-95 | Raksha - 95       | Adesh Choudhary-95 | Suyash Goyal --95   | Pushpanjali -- 95  |
| Rishi Amoria -- 95 | Yash Saxena-95    | Salil Gupta - 95   | Vardhan Dogre—95    | Lalit Gaur -- 95   |

**Final Test Series { Set code: KJB/2013-14/SC-II/01 }**

## General Instructions:

- The question paper comprises of two sections, A & B. You are to attempt both the sections.
- All the questions are compulsory.
- There is no overall choice. However, internal choice has been provided in all the five questions of five marks category. Only one option in each question is to be attempted.
- All the questions of Section A and all sections of section B are to be attempted separately.
- Question numbers 1 to 3 in Section A are 1 mark questions. These are to be answered in one word or one sentence.
- Question numbers 4 to 7 are 2 mark questions, to be answered in about 30 words.
- Question numbers 8 to 19 are 3 mark questions, to be answered in about 50 words.
- Question numbers 20 to 24 are 5 mark questions, to be answered in about 70 words.
- Question numbers 25 to 42 in Section B are Multiple Choice Questions on Practical Skills. Each question is 1 mark question. You are to choose one most appropriate response of the options provided to you.

## SECTION 'A'

- Give the name of functional groups. (i) -CHO (ii) -C = O
- Draw the path of the ray of light when it passes from air to glass .
- What is the function of genes in an organism ?
- With respect to air, the refractive index of ice is 1.31 and that of rock salt is 1.54. Calculate the refractive index of rock salt with respect of ice.
- State any two practices which can help in protecting our environment.
- What are synthetic detergents ? Give two advantages over soap.
- An organic compound ' A ' is a constituent of antifreeze. The compound on heating with oxygen forms another compound B which has a molecular formula  $C_2H_4O_2$ . Identify the compound ' A ' and ' B '.  
Write the chemical equation of the reaction that takes place to form the compound ' B '.
- Why do you think that the noble gases should be placed in a separate group?
- What would be the electron dot structure of carbon dioxide which has the formula  $CO_2$  ?
- Why sunset and sunrise are red? Explain.
- An object 5 cm high is placed at 20 cm away in front of a concave mirror of focal length 15 cm. At what distance from the mirror, should a screen be placed to obtain a sharp image ? Calculate the size

of the image formed.

12. What are the stakeholders in respect of forests ? Which one of these cause maximum damage to forest and why ?
13. (i) How do you calculate the valency of an element from its electronic configuration ?  
 (ii) What is the valency of magnesium with atomic number 12 and chlorine with atomic number 17  
 (iii) What is the difference in number of shells in magnesium and sulphur ?
14. (a) What is gene ?  
 (b) Where are genes located ?  
 (c) What is the nature of genes ?
15. What is biodiversity ? Why is it important to conserve biodiversity ?
16. (a) Why are covalent compounds poor conductors of electricity ?  
 (b) Draw the structure of ethanol.  
 (c) Name the gas evolved when sodium hydrogen carbonate is added to acetic acid. Give chemical reaction.
17. (a) An element 'X' is in second period & group 16 of the periodic table:  
 (i) Is it metal or non-metal? (ii) What is its valency?  
 (iii) What will be the formula of compound of 'X' with Na?  
 (iv) What is the name of the element?  
 (b) How does atomic size of an element vary on moving from?  
 1) Left to right in a period. 2) Bottom to top in a group.?
18. In human beings, the statistical probability of getting either a male or a female child is 50 :50." Justify this statement with the help of a diagram.
19. (a) Define power of a lens and give its units.  
 (b) A convex lens forms a real and inverted image of a needle at a distance of 50cm from it. Where is the needle placed in front of this lens if the image is equal to the size of the object ? Also find power of the lens.
20. (a) Illustrate with the help of ray diagram for a concave mirror the following terms –  
 (i) Principal focus (ii) Center of curvature  
 (b) The image of a candle flame formed by a lens is obtained on a screen placed on the other side of the lens. If the image is three times the size of the flame and the distance between lens and image is 80cm, at which distance should the candle be placed from the lens? What is the nature of the lens ? Also give the nature and position of image.
- OR**
- (a) Illustrate with the help of ray diagram for a convex mirror the following terms –  
 (i) Principal focus (ii) Center of curvature.  
 (b) An object 2cm high when placed in front of a converging mirror produces a virtual image 3cm high. If the object is placed at a distance of 8 cm from the pole of the mirror, calculate :  
 (i) the position of the image (ii) the focal length of the converging mirror.
21. Name any four modes of reproduction used by single organisms. With the help of a neat diagram explain the process of regeneration in Planaria. "More complex organisms cannot give rise to new individuals through regeneration". Why ?

**OR**

Distinguish between pollination and fertilisation. Explain why, pollination may occur without

fertilization but fertilisation will not take place without pollination. Draw a neat diagram showing the process of pollination and fertilisation in a flowering plant and label the following on it.

(i) Female germ cell (ii) Male germ cell (iii) Ovary (iv) Pollen tube.

22. (a) Mention any two reasons to explain the ability of carbon to form a large number of compounds.  
 (b) Differentiate between saturated and unsaturated hydrocarbons giving one example of each.  
 (c) Name any other element which like carbon can form compounds which have chains upto seven or eight atoms. How do these compounds differ from carbon compounds?

OR

- (a) What are isomers ? Illustrate with one example.  
 (b) Write the chemical formula of Benzene and draw its structure.  
 (c) Write the name of unsaturated hydrocarbons which contains  
 (i) one or more double bonds (ii) one or more triple bonds.

23. (a) Explain the process of regeneration with the help of an example and suitable diagram.  
 (b) Differentiate between regeneration and reproduction  
 (c) How does a hydra reproduce?

OR

- (a) What is meant by DNA copying ?  
 (b) What is the importance of DNA copying in reproduction ?  
 (c) Why is variation beneficial to species ? Illustrate with the help of an example.

24. Give reasons for the following

- (a) Colour of clear sky is blue (b) Sun can be seen about two minutes before actual sunrise  
 (c) Traffic light signals are of red colour (d) Stars appears to twinkle  
 (e) Planets do not twinkle

OR

A student has difficulty in reading the black board while sitting the last row. What Could be the defect he is suffering from? How can it be corrected? Draw a ray diagram for

- (a) The defective eye. (b) Its correction.

### Section – B

25. A reproduction by single organism without the production of gametes is known as:

- (a) Asexual reproduction (b) Both (c) Bisexual reproduction (d) none of these

26. A student carries out the experiment of tracing the path of a ray of light through a rectangular glass slab, for two different values of angle of incidence;  $\angle i = 30^\circ$  and  $\angle i = 45^\circ$ . The set of values of the angle of refraction ( $\angle r$ ), and the angle of emergence ( $\angle e$ ), she is likely to observe in the two cases, are:

- (a) [ $\angle r = 30^\circ$ ,  $\angle e = 20^\circ$ ] and [ $\angle r = 45^\circ$ ,  $\angle e = 28^\circ$ ] (b) [ $\angle r = 20^\circ$ ,  $\angle e = 30^\circ$ ] [ $\angle r = 45^\circ$ ,  $\angle e = 28^\circ$ ]  
 (c) [ $\angle r = 20^\circ$ ,  $\angle e = 30^\circ$ ] and [ $\angle r = 28^\circ$ ,  $\angle e = 45^\circ$ ] (d) [ $\angle r = 30^\circ$ ,  $\angle e = 20^\circ$ ] [ $\angle r = 28^\circ$ ,  $\angle e = 45^\circ$ ]

27. A slide showing several amoebae was given to a student and was asked to focus the amoeba undergoing binary fission. What will the student look for to correctly focus on a dividing amoeba?

- (a) An amoeba with elongated nucleus and a constriction in the middle (b) An amoeba covered by a cyst and many nuclei  
 (c) A rounded amoeba with rounded nucleus (d) An amoeba with many pseudopodia and a small nucleus

28. A student obtains a blurred image of an object on a screen by using a concave mirror. In order to obtain a sharp image on the screen, he will have to shift the mirror:

- (a) to a position very far away from the screen (b) either towards or away from the screen depending upon the position of the object  
 (c) away from the screen (d) towards the screen

29. Out of the following, the best way to do the experiment on finding the focal length of a concave mirror by obtaining the image of a distant object is to:

- (a) keep both the mirror and the screen in suitable stands with the screen put behind the mirror
- (b) keep both the mirror and screen in suitable stands with the screen put in front of the mirror.
- (c) hold the mirror in hand and keep the screen in a stand kept behind the mirror
- (d) hold the mirror in a stand and hold the screen in hand, with the screen in front of the mirror

30. In the determination of percentage of water absorbed by raisins, raisins should be soaked in water for:

- (a) Overnight
- (b) 5 to 10 hrs
- (c) 1 to 3 hrs
- (d) 2 to 5 hrs

31. What are the types of osmosis?

- (a) Osmosis and endosmosis
- (b) Endosmosis and exosmosis
- (c) Osmosis and reosmosis
- (d) Osmosis and exosmosis

32. Refraction cannot cause bending as light moves one surface to another if the incident and refraction angles  $i$  and  $r$  are related as:

- (a)  $i = r = 90^\circ$
- (b)  $i = r = 0$
- (c)  $i = 90^\circ, r = 0^\circ$
- (d)  $i \neq r = 0$

33. Which of the following can be used to find focal length of a lens?

- (a) Light from sun
- (b) Light from a distant tree
- (c) Light from window of our lab.
- (d) Object at a distance of 10 cm for a focal length of 30 cm.

34. The odour of ethanoic acid resembles with:

- (a) Kerosene
- (b) Orange juice
- (c) Vinegar
- (d) Tomato juice

35. Acetic acid, when dissolved in water, it dissociates into ions reversibly because it is a:

- (a) strong base
- (b) weak base
- (c) strong acid
- (d) weak acid

36. 10 ml of freshly prepared iron sulphate solution was taken in each of four test tubes. Strips of copper, iron, zinc and aluminium were introduced, each metal in a different test tube. A black residue was obtained in two of them. The right pair of metals forming the precipitates is:

- (a) zinc and aluminium
- (b) iron and aluminium
- (c) copper and zinc
- (d) aluminium and copper

37. Swelling of any raisins indicate that:

- (a) external solution is hypotonic
- (b) skin of raisins is impermeable
- (c) external solution is hypertonic
- (d) external solution is isotonic

38. When you place iron in copper sulphate solution, the reddish brown coating formed on the nail is:

- (a) rough and granular
- (b) Hard and flaky
- (c) smooth and shining
- (d) soft and dull

39. To determine the focal length of a concave mirror, a student focuses a distant object using the concave mirror. The best object can be:

- (a) Sun
- (b) A distant tree
- (c) Classroom window
- (d) All of these

40. 2 ml of acetic acid was added in drops to 5 ml of water it was noticed that:

- (a) a clear and homogenous solution was formed
- (b) A pink and clear solution was formed
- (c) water formed a separate layer on the top of water
- (d) the acid formed a separate layer on the top of water

41. To find focal length it is advisable to:

- (a) Wooden bench holding the lens should be fixed horizontally
- (b) Fix lens in a stand vertically
- (c) The screen should be arranged slanted
- (d) Both (A) and

42. Which one of the following sets of materials represents the minimum materials required for determining the focal length of a convex lens by obtaining an image of a distant object:

- (a) Set A : A convex lens, a lens holder, a screen with stand, a measuring scale
- (b) Set B : A candle, a match box, a convex lens, a lens holder, a screen with stand
- (c) Set C : A lens holder, a convex lens, a measuring lens, a concave lens
- (d) Set D : A convex lens, a burning candle, a screen with stand, a lens holder.