

**KENDRIYA VIDYALAYA GACHIBOWLI , HYDERABAD - 32**  
**SAMPLE PAPER 03 FOR SA - II (2015-16)**

**SUBJECT: SCIENCE**

**BLUE PRINT : SA-II CLASS X**

<b>Unit/Topic</b>	<b>VSA/MCQ (1 mark)</b>	<b>Short answer (2 marks)</b>	<b>Short answer (3 marks)</b>	<b>Long answer (5 marks)</b>	<b>Total</b>
Carbon and its Compounds	3(3)	2(1)	3(1)	10(2)	<b>18(7)</b>
Periodic Classification of elements	-	2(1)	3(1)	-	<b>05(2)</b>
How do Organisms Reproduce ?	4(4)	2(1)	6(2)	10(2)	<b>22(9)</b>
Heredity and Evolution	-	2(1)	6(2)	-	<b>08(3)</b>
Light – Reflection and Refraction	4(4)	-	6(2)	10(2)	<b>20(8)</b>
Human Eye	1(1)	2(1)	6(2)	-	<b>09(4)</b>
Our Environment	-	2(1)	3(1)	-	<b>05(2)</b>
Management of Natural Resources	-	-	3(1)	-	<b>03(1)</b>
<b>Total</b>	12(12)	12(6)	36(12)	30(6)	<b>90(36)</b>

**MARKING SCHEME FOR SA – II**

<b>SECTION</b>	<b>MARKS</b>	<b>NO. OF QUESTIONS</b>	<b>TOTAL</b>
<b>VSA</b>	1	3	03
<b>SA – I</b>	2	3	06
<b>SA – II</b>	3	12	36
<b>LA</b>	5	6	30
<b>Practical based MCQs</b>	1	9	09
	2	3	06
<b>GRAND TOTAL</b>			<b>90</b>

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**SUBJECT: SCIENCE**

**MAX. MARKS : 90**

**CLASS : X**

**DURATION : 3 HRS**

**General Instructions:**

1. All questions are compulsory.
2. The question paper comprises of **two Sections, A and B**. You are to attempt both the sections.
3. All questions of **Section-A** and **Section-B** are to be attempted separately.
4. Question numbers **1 to 3** in **Section-A** are **one mark** questions. These are to be answered in **one word** or in **one sentence**.
5. Question numbers **4 to 6** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **7 to 18** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.
7. Question numbers **19 to 24** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. Question numbers **25 to 33** in **Section-B** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.
9. Question numbers **34 to 36** in **Section-B** are questions based on practical skills and are **two marks** questions.

**SECTION – A**

1. Define the principal focus of a concave mirror.
2. What is the location of the following: (i) DNA in a cell (ii) Gene
3. Name the phenomena of light that are involved in the formation of a rainbow.
4. Following are the elements of second period of the periodic table.  
Li Be B C N O F  
(a) Give reasons to explain why atomic radii decreases from Li to F ?  
(b) Identify the most  
(i) metallic element (ii) non-metallic element
5. Write the name of those parts of a flower which serve the same function as the following do in the animals: (i) Testis (ii) Sperm (iii) Ovary (iv) Egg
6. List any four factors which could lead to the formation of new species.
7. Complete the following reaction. Also balance them.  
(a)  $CH_3 - CH_2OH \xrightarrow{conc.H_2SO_4}$   
(b)  $C_2H_5OH + O_2 \longrightarrow$   
(c)  $C_2H_5OH + Na \longrightarrow$
8. (a) How are power and focal length of a lens related?  
(b) You are provided with two lenses of focal length 20 cm and 40 cm respectively. What lens will you use to obtain more convergent light?
9. Mention any three problems addressed by criticisms about large dams.

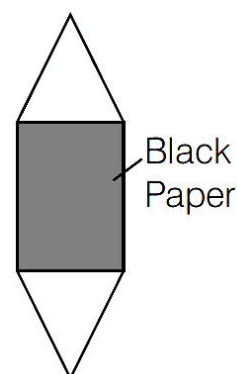
- 10.** A person needs a lens of power – 4.5 D for correction of his vision.
- What kind of defect in vision is the person having?
  - What is the focal length of the corrective lens?
  - Name the type of corrective lens.
- 11.** Number of vultures is decreasing remarkably. Now-a-days which is matter of concern.
- Vultures belong to which category of animal?
  - What is their role in nature to maintain ecological balance?
  - What value of the learner do we see to show concern towards this topic?
- 12.** An element  $X$  (atomic number 17) reacts with an element  $Y$  (atomic number 20) to form a divalent halide.
- What is the position of element  $X$  and  $Y$  in the periodic table?
  - What will be the nature of oxide of element  $Y$ ? Identify the nature of bonding in the compound formed.
- 13.** In a class, the Physics teacher told her students that our eyes can live even after our death. She told them that by donating our eyes after we die, one pair of our eyes can give vision to two corneal blind people. Eye donors may belong from either sex or any age group. People who are suffering from diabetes, hypertension, asthma or any other non-communicable disease can donate eyes. Eye banks have been established for this purpose, where you can pledge to donate your eyes after your death.
- Read the above text and answer the following questions:
- Is it possible that people using spectacles or those who have been operated for cataract, donate their eyes?
  - Why is the pledge necessary?
  - Do you intend to make such a pledge? Why?
- 14.** What happens to the lining of uterus
- before the release of a fertilised egg?
  - if no fertilisation occurs?
- 15.** What is vegetative propagation? List two advantages of vegetative propagation.
- 16.** A village recorded highest cases of atrocities against women. The health officer of the village = organised a skit to convey the fact that women should not be punished for giving birth to a girl child. They should be given due respect in society. The villagers were greatly motivated.
- Read the above passage and answer the following questions
- What are the methods of sex determination in humans?
  - What are the sex chromosomes in males?
  - What values was the officer trying to highlight through the skit?
- 17.** Harish and his friends were excited about the news of tomorrow's solar eclipse. Harish convinced his friends to witness the eclipse. Harish told them that looking at the sun directly or even into a mirror reflecting sunlight, may damage their eyes. So, Harish narrated the method to witness to natural phenomenon in the following ways:
- Hold a concave mirror in hands and direct its reflecting surface towards the sun.
  - Direct the light reflected by the mirror on to a sheet of paper held close to the mirror.
  - Move the sheet of paper back and forth gradually until a bright, sharp spot of light is found on the paper sheet, hold the mirror and the paper in the same position for a few minutes.
- Read the above information and answer the following questions:
- What is the separation between the concave mirror and the paper sheet having a bright, sharp spot of light in hands?
  - Draw the ray diagram used while observing the bright, sharp spot of light in above activity.

18. Differentiate between inherited and acquired trait. Give one example for each.
19. Draw a ray diagram showing the image formation by a concave mirror, when an object is placed
- between pole and focus of the mirror.
  - between focus and centre of curvature of the mirror.
  - a little beyond the centre of curvature of the mirror.
- Also describe the nature of image when concave mirror is replaced by convex mirror in case (c).
20. (a) Which hydrocarbons burn with (i) non-sooty blue flame and (ii) sooty yellow flame?  
 (b) What happens when methane reacts with chlorine?  
 (c) What is rectified spirit?  
 (d) Why does soap not work in hard water?  
 (e) What is glacial acetic acid?
21. (a) What is hydrogenation? Give one reaction. What is its industrial application?  
 (b) What is esterification?
22. (a) How does reproduction help in providing stability to populations of species?  
 (b) Do genetic combination of mother plays a significant role in determining the sex of a newborn?
23. (a) Draw longitudinal section of a flower.  
 (b) Give difference between gamete and zygote. Explain their role in sexual reproduction.
24. A student focussed the image of a candle flame on a white screen using a convex lens. He noted down the position of the candle screen and the lens as under.  
 Position of candle = 12.0 cm  
 Position of convex lens = 50.0 cm  
 Position of screen = 88.0 cm
- What is the focal length of the convex lens?
  - Where will the image be formed if he shifts the candle towards the lens at a position of 31.0 cm?
  - What will be the nature of the image formed if he further shifts the candle towards the lens?
  - Draw a ray diagram to show the formation of the image in part (c).

### SECTION – B

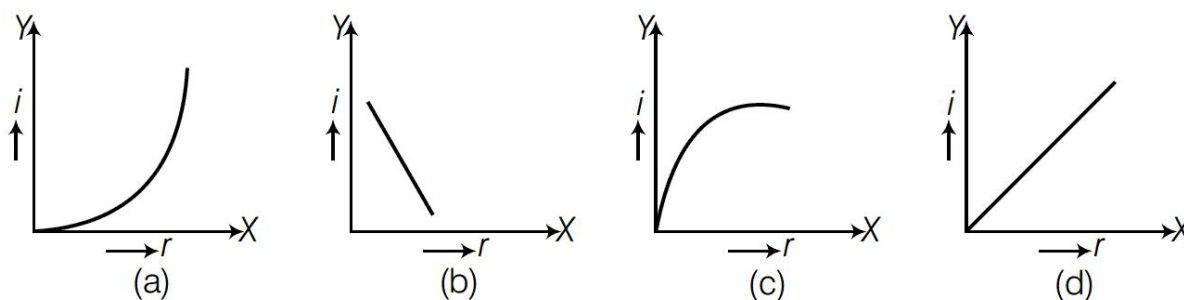
25. How will the image formed by a convex lens be affected, if the central portion of the lens is wrapped in the black paper?

- No image is formed by the remaining portion of the lens
- The central portion of the image will be absent
- There will be no effect
- The full image will be formed but it will be less bright

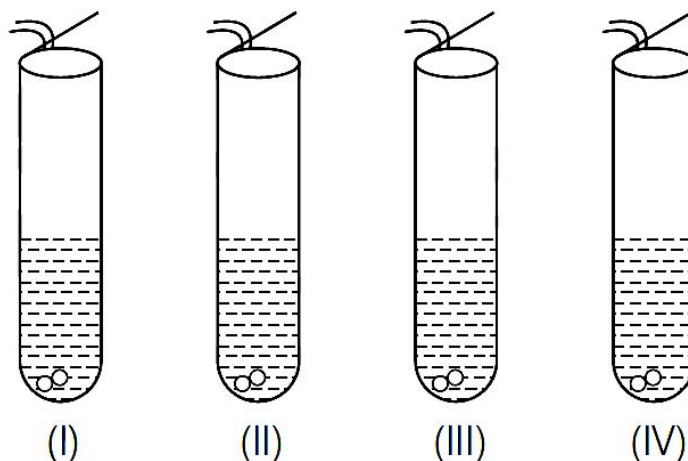


26. A student obtains a blurred image of an object on a screen by using a concave mirror. In order to obtain a sharp image on the screen, he will have to shift the mirror
- towards the screen
  - away from the screen
  - either towards or away from the screen depending upon the position of the object
  - to a position very far away from the screen

27. Which of the following correctly represents graphical relation between angle of incidence ( $i$ ) and angle of reflection ( $r$ )?



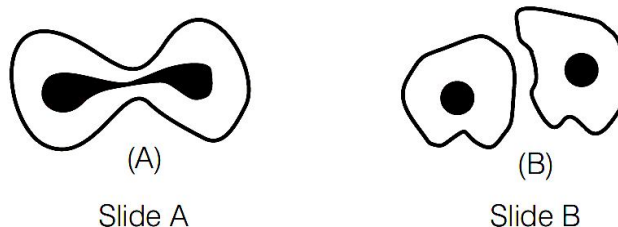
28. A student added acetic acid to test tubes I, II, III and IV containing the labelled substances and then brought a burning splinter near the mouth of each test tube.



The splinter would be extinguished when brought near the mouth of test tube

- (a) I                      (b) II                      (c) III                      (d) IV

29. *Amoeba* divides by binary fission and yeast by budding. The given slides A and B were identified by students I, II, III and IV as stated below



Slide A	Slide B
I. Binary fission in <i>Amoeba</i>	I. Daughter cells of <i>Amoeba</i>
II. Budding in Yeast	II. Buds of Yeast
III. Binary fission in <i>Amoeba</i>	III. Buds of Yeast
IV. Budding in Yeast	IV. Daughter cells in <i>Amoeba</i>

Of the abovementioned identifications of slides A and B, which one is correct?

- (a) I                      (b) II                      (c) III                      (d) IV

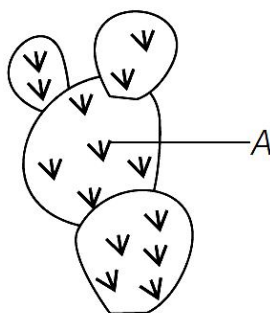
30. After observing the prepared slides of binary fission in *Amoeba* and budding in Yeast following observations were reported

- (A) Single cells of *Amoeba* and Yeast were undergoing binary fission and budding respectively.  
 (B) Cytokinesis was observed in the yeast cell.  
 (C) Elongated nucleus was dividing to form two daughter nuclei in *Amoeba*.  
 (D) A chain of buds were observed due to reproduction in *Amoeba*.

The correct observation(s) is/are

- (a) A and C                      (b) Only B                      (c) C and D                      (d) D, A and C

31. When groundnut oil is heated with caustic soda solution, the products formed are
- (a) a soap and glycerol
  - (b) a detergent and glycerol
  - (c) only a soap
  - (d) only a detergent
32. Scum is the precipitate formed when soap in water reacts with
- (a) calcium and magnesium salts
  - (b) calcium and sodium salts
  - (c) magnesium and sodium salts
  - (d) calcium and potassium salts
33. Sita was asked to identify the given diagram and label the marked part A. Choose correct answer.
- (a) *Opuntia*, phylloclade
  - (b) *Opuntia*, spine
  - (c) *Citrus*, thorn
  - (d) *Citrus*, phylloclade



34. What will happen if we kill all the organisms of one trophic level?
35. What happens when the brisk effervescence of  $\text{CO}_2$  gas is passed through lighted splinter?
36. The water in deep sea appears blue. Explain why?
- .....