

KENDRIYA VIDYALAYA GACHIBOWLI , HYDERABAD - 32
SAMPLE PAPER 04 FOR SA - II (2016-17)

SUBJECT: SCIENCE

BLUE PRINT : SA-II CLASS X

Unit/Topic	VSA/MCQ (1 mark)	Short answer (2 marks)	Short answer (3 marks)	Long answer (5 marks)	Total
Carbon and its Compounds	3(3)	2(1)	6(2)	-	11(6)
Periodic Classification of elements	1(1)	-	6(2)	5(1)	12(4)
How do Organisms Reproduce ?	3(3)	2(1)	6(2)	5(1)	16(7)
Heredity and Evolution	-	-	9(3)	5(1)	14(4)
Light – Reflection and Refraction	4(4)	4(2)	6(2)	10(2)	24(10)
Human Eye	-	-	-	5(1)	5(1)
Our Environment	1(1)	2(1)	3(1)	-	6(3)
Management of Natural Resources	-	2(1)	-	-	2(1)
Total	12(12)	12(6)	36(12)	30(6)	90(36)

MARKING SCHEME FOR SA – II

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

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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.

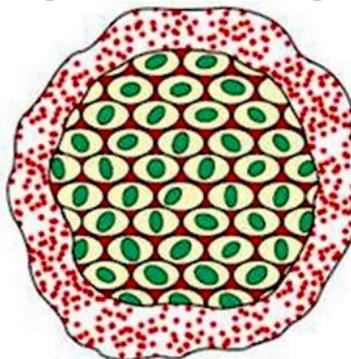
SECTION – A

1. Crop fields are called artificial ecosystems. Justify.
2. Which element has four valence electrons and is in the second period ?
3. Mention the role of the tail of the sperm ?
4. Mention any four reasons of deforestation.
5. There is a need to dispose waste in proper manner. Justify this statement giving reasons.
6. State the laws of reflection.
7. What is pollination ? How is self-pollination different from cross-pollination ?
8. Variations are seen when there is inheritance of characters. Explain this statement.
9. Explain the phenomenon of scattering of light. No rainbow could be observed from the surface of moon by the astronauts. State the possible reason.
10. A student using a convex lens of focal length 20 cm, formed image of an object placed in front of the lens on one side a screen placed on the other side of the lens. He noted the following reading for object distance (u) and image distance (v) from lens.

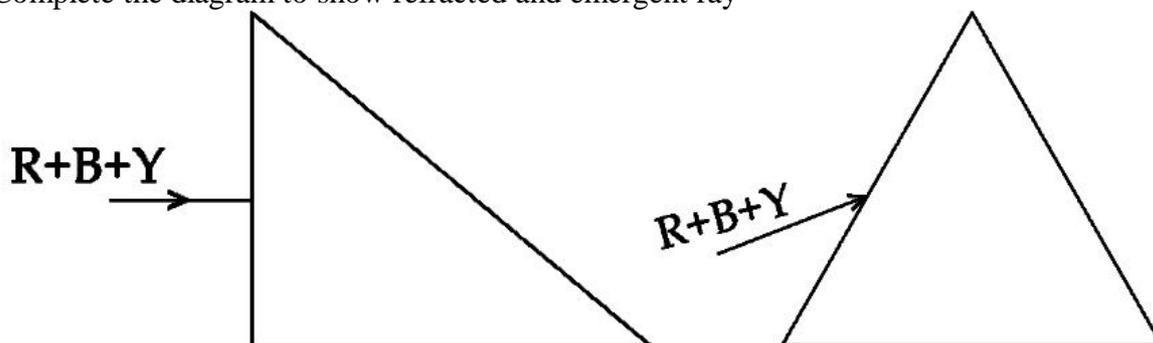
S.No	1	2	3	4	5	6
u (cm)	60	45	40	32	35	15
v (cm)	30	36	45	53	25	10

Without using lens formula, comment, which of these observations are wrong. Justify your answer.

11. Reuse is better than recycling. Give two examples of reuse strategy. Mention any two values do we attain from this strategy.
12. (a) Distinguish between saturated hydrocarbon and unsaturated hydrocarbon with the help of combustion process.
 (b) Write the chemical names of C_4H_{10} and C_2H_2 and draw their structures.
13. (a) Define covalent bonding and give one example of an element other than carbon which forms covalent bond.
 (b) State the number of valence electrons and valency of carbon atom.
14. Explain how the tendency to gain electrons change on moving down a group ?
15. (a) Name the element with atomic number 2.
 (b) To which group does it belong ?
 (c) To which period does it belong ?
 (d) Write its electronic configuration.
16. In an organism the chromosome number is 26. This chromosome number is restored in the zygote. How does this occur ?
17. An organ like a wing in birds are an advantage to the organism. Did they appear in different stages or were formed due to a single sudden change in them ?
18. The picture given below depicts the process of asexual reproduction in Plasmodium,



- (a) Name the process depicted above and define it.
 (b) What is meant by asexual reproduction ?
19. (a) Define dispersion of light. How is scattering of light different from dispersion ? Give one example of natural phenomenon based on each of these.
 (b) A beam of light consisting of red, blue and yellow is incident on the prisms as shown below. Complete the diagram to show refracted and emergent ray



20. A student has three concave mirrors A, B, C of focal lengths 20 cm, 15 cm and 10 cm respectively. For each concave mirror he performs the experiment of image formation for three values of object distance of 30 cm, 10 cm and 20 cm.

Giving reason answer the following :

- For the three object distances identify the mirror which will form an image equal in size to that of object. Find at least one value of object distance.
- Out of the three mirror identify the mirror which would be preferred to be used for shaving purpose.
- For the mirror B draw ray diagram for image formation for any two given values of object distance.

21. Name the element which has

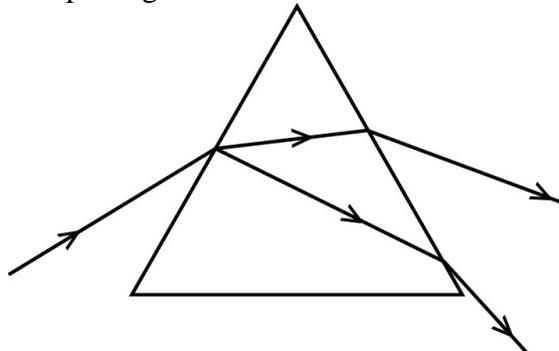
- The electronic configuration. 2, 8, 1.
- A total of two shells, with 4 electrons in the valence shell.
- A total of three shells, with 3 electrons in the valence shell.
- One shell which is completely filled with electrons.
- Twice as many electrons in the second shell as in the first shell.

22. Give reasons for the following :

- Traits acquired during lifetime of an individual are not inherited.
- All the human beings belong to a single species.
- Variations keep on accumulating during reproduction, and do not disappear in next generation.

23. (a) In the figure given below mark the angle of prism, angle of deviation for red and violet colour and the incident ray.

(b) Explain how the components of white light can be recombined after a prism has separated them. Explain with the help of figure.



24. Differentiate between the following :

- Pollen tube and Style
- Fission in *Amoeba* and *Plasmodium*
- Fragmentation and Regeneration
- Bud of *Hydra* and bud of *Bryophyllum*
- Vegetative propagation and Spore formation

SECTION – B

25. The water that lathers well with soaps is :

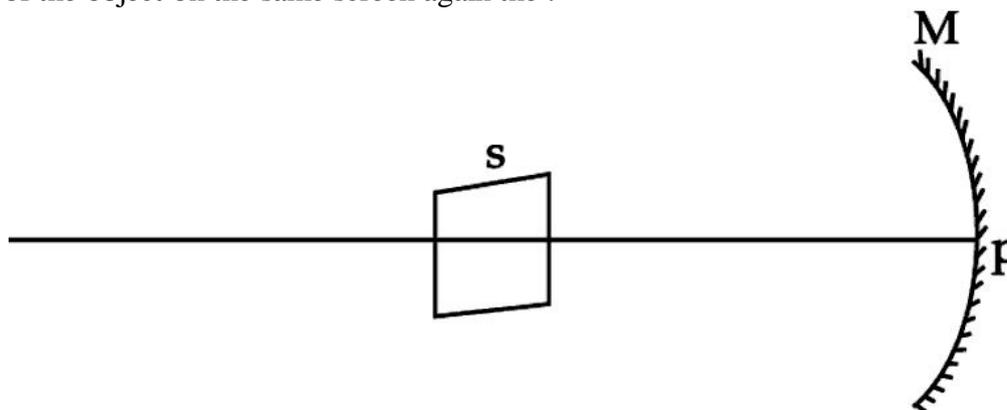
- | | |
|----------------|-------------------|
| (a) Hard water | (b) Soft water |
| (c) Sea water | (d) Bromine water |

26. The following are the few steps of the procedure for determining the focal length of a given convex lens by obtaining a sharp image of a distant object :
- Measure the distance between the lens and the screen
 - Select a suitable distant object
 - Adjust the position of the lens to form a sharp image
 - Hold the lens between the object and screen with its faces parallel to the screen. The correct sequence of the steps for the experiment is :
- (a) (iii), (iv), (i), (ii) (b) (ii), (iv), (iii), (i)
 (c) (iii), (i), (iv), (ii) (d) (ii), (iii), (iv), (i)

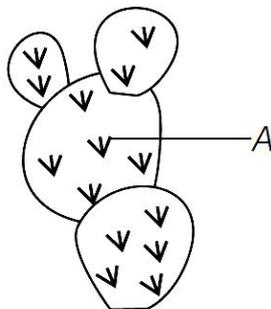
27. The correct general equation for saponification reaction is :
- Ester of fatty acid+alkali \rightarrow soap +glycol
 - Ester of fatty acid+alkali \rightarrow soap +glycerol
 - Ester of fatty acid+acid \rightarrow soap + glycerol
 - Ester of fatty acid+acid \rightarrow soap +glycol

28. To prepare soap oil/fat used is :
- kerosene oil (b) turpentile oil
 - paraffin (d) vegetable oil

29. In the figure below 's' is the position of the screen on which a sharp image of a distant object (nearly 600 m away from the concave mirror of focal length 10 cm) is formed by the mirror 'M'. If the object moves towards the mirror by some distance say 50 cm, then to obtain the sharp image of the object on the same screen again the :



- screen should be moved towards the object.
 - screen need not be moved.
 - mirror should be moved towards the screen.
 - screen and mirror both should be moved towards the object by same distance.
30. The part labelled as 'A' in the adjoining figure is homologous to which part of a plant ?



- leaf (b) stem
- flower (d) fruit

31. The relation for refractive index, $n = \frac{\sin i}{\sin r}$, where i and r are incidence and refracted angle, is named as :
- (a) Joule's law (b) Snell's law
(c) Boyle's law (d) Newton's law

32. The small pore, through which water enters in few seeds is called :
- (a) Radicle (b) Plumule
(c) Coyledon (d) Micropyle.

33. While doing the experiment of tracing the path of ray of light through a triangular glass prism a student takes precautions :
- (A) position of prism should be fixed while doing experiment.
(B) angle of incidence should not be less than 30° .
(C) two pins taken as object should be placed on incident ray at proper distance from each other.
(D) locate the position of image keeping both eyes open.
- One of the precautions is not appropriate. It is :
- (a) (A) (b) (B)
(c) (C) (d) (D)

34. A student performed an experiment for the image formation by a convex lens at different positions of an object. If focal length of lens is 15 cm.
Match the following :

Position of object	Position of the image
(a) At 15 cm from convex lens	(a) At 30 cm from convex lens
(b) At 30 cm from lens	(b) On the same side of an object
(c) Beyond 30 cm of lens	(c) At infinity
(d) At 10 cm from lens	(d) Between 15 cm and 30 cm of lens

35. In an experiment to study the properties of Acetic acid, answer the following questions :
- (a) Name the substance which on addition to acetic acid produces carbon dioxide gas.
(b) How carbon dioxide gas is tested in the laboratory ?

36. Correct the labelling of budding in yeast in the given diagram :

