

KENDRIYA VIDYALAYA GACHIBOWLI , HYDERABAD - 32
SAMPLE PAPER 01 FOR SA - II (2015-16)

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 | 2(2) | 2(1) | 3(1) | 10(2) | 17(6) |
| Periodic Classification of elements | 1(1) | 2(1) | 3(1) | - | 06(3) |
| How do Organisms Reproduce ? | 2(2) | 4(2) | 6(2) | 5(1) | 17(7) |
| Heredity and Evolution | 2(2) | - | 6(2) | 5(1) | 13(5) |
| Light – Reflection and Refraction | 4(4) | 2(1) | 6(2) | 10(2) | 22(9) |
| Human Eye | 1(1) | - | 6(2) | - | 07(3) |
| Our Environment | - | 2(1) | 3(1) | - | 05(2) |
| Management of Natural Resources | - | - | 3(1) | - | 03(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. On which side of the periodic table do you find (i) metals (ii) non –metals?
2. State the nature of the image formed at the retina of human eye.
3. Draw the electron dot structure of nitrogen molecule.
4. The atomic radii of three elements A, B and C of a periodic table are 186 pm, 104 pm and 143 pm respectively. Giving a reason, arrange these elements in the increasing order of atomic number in the period.
5. (a) Mention two secondary sexual characters in human male.
(b) Why testis in male body are extra abdominal?
6. a) In the following food chain 40J of energy was available to the Hawks. How much energy would have been present in the plants?
b) Which organism occupies first trophic level in a food chain?
7. (a) Define functional group
(b) Identify the product (A) formed in the following reaction:
$$CH_3CH_2OH \xrightarrow[Conc.H_2SO_4]{443K} A + H_2O$$
8. An atom has electronic configuration 2, 8, 2.
(a) What is the atomic number of this element?
(b) What is its valency?
(c) To which of the following elements would it be chemically similar and why? Be (4), O(8), justify your answer. (Atomic number are given in brackets)
9. List four disadvantages of burning fossil fuels.

10. (a) The sun appears oval at sunrise and sunset, but appears circular at noon. Explain why?
(b) List any two properties of the image formed by a plane mirror.
11. (a) List four stakeholders of forests.
(b) Why are forests considered “biodiversity hotspot”? What would happen due to loss of biodiversity?
12. (a) Name the unit of inheritance. What is its function?
(b) How are inherited traits different from acquired traits? Give examples.
13. An object 1 cm tall is placed at a distance of 15 cm from a concave mirror of focal length 10 cm. Find the position, size and nature of the image formed by the mirror.
14. (a) Define genetics
(b) Who is regarded as the “Father of genetics”? Name the plant on which he performed his experiments.
(c) Why did he select that specific plant for his experimental studies?
15. (a) What is the fate of the ovules and the ovary in a flower after fertilization?
(b) How is the process of pollination different from fertilization?
16. (a) Write two functions each of (i) Testis (ii) Ovaries
(b) Differentiate between Vas deferens and fallopian tube.
17. (a) Define absolute refractive index of a medium.
(b) The radius of curvature of concave mirror is 50cm. Where should an object be placed from the mirror so as form its image at infinity? Justify your answer.
18. Aditya and Aditi are best friends and study in grade 10. Recently, Aditya has been facing difficulty in reading the blackboard text from the last desk. Aditi is little uncomfortable and wonders why Aditya avoids sitting on the last desk. On observation she found that Aditya often carries junk food in his lunch. Aditi has started sharing her lunch full of green vegetables and fruits with his. Aditya is now better and has also started taking a balanced diet.
(a) Name the eye defect Aditya is suffering from
(b) What are the two possible deformities related to his eye defect?
(c) What values is shown by Aditi and Aditya?
19. (a) Explain the term: (i) Geographical isolation (ii) Genetic drift (iii) Natural selection
(b) Which of the following fossils is invertebrate and which one vertebrate? (i) Dinosaur (ii) Ammonite
(c) How can the age of fossil be ascertained? State in brief any two methods.
20. (a) Name the type of mirror used in the following: (i) Headlights of a car (ii) Rear view mirror of a vehicle. Justify your answer with reason.
(b) When an object is placed at a distance of 60cm from a diverging spherical mirror, the magnification produced is 0.5. Where should the object be placed to get a magnification of $\frac{1}{3}$?
21. (a) Differentiate between soap and detergent.
(b) Explain why, soap forms scum with hard water whereas detergents do not.
22. (a) Write the name of the functional group in CH_3COCH_3 .
(b) An organic compound burns with a sooty flame. Is it saturated or unsaturated hydrocarbon?
(c) Give a balanced equation state how you will convert methane to carbon dioxide.
(d) Why does micelle formation take place when soap is added to water? Will a micelle be formed in all type of solvents? Justify your answer.

(a) How is the power of a lens related to its focal length? Find the power of a concave lens of focal length 25cm.

(b) State Snell's law of refraction.

(c) What is the speed of light in a transparent medium which has a refractive index of 1.7?

23. (a) List two advantage of sexual reproduction over asexual reproduction.

(b) Name the type of asexual reproduction seen in (i) Plasmodium (ii) Planaria

(c) Draw a diagram of rhizopus showing the location of : (i) Sporangium (ii) Rhizoidal hyphae

(d) How will an organism be benefited if it reproduces through spores?

SECTION – B

24. In an experiment to study the properties of acetic acid a student takes about 2 mL of acetic acid in a dry test tube. He adds about 2 mL of water to it and shakes the test tube well. He is likely to observe that:

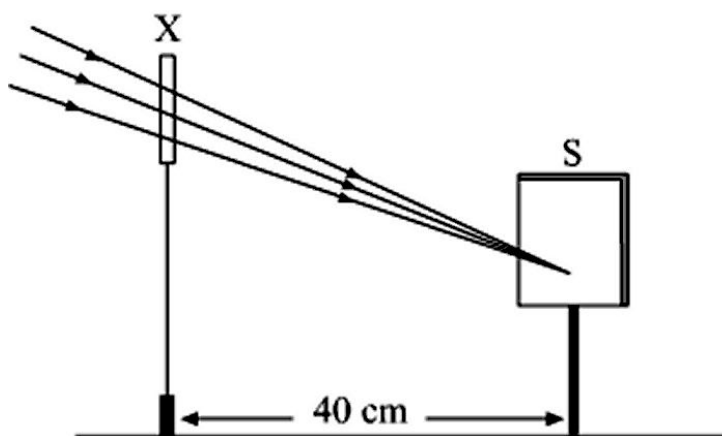
(a) the acetic acid dissolves readily in water

(b) the solution becomes light orange

(c) water floats over the surface of acetic acid

(d) acetic acid floats over the surface of water

25. A student focussed the image of a distant object using a device 'X' on a white screen 'S' as shown in the figure. If the distance of the screen from the device is 40 cm, select the correct statement about the device.



(a) The device X is a convex lens of focal length 20 cm.

(b) The device X is a concave mirror of focal length 40 cm.

(c) The device X is a convex mirror of radius of curvature 40 cm.

(d) The device X is a convex lens of focal length 40 cm.

26. A student is given a permanent slide showing binary fission in Amoeba. The following are the steps in focusing the object under the microscope, which are not in proper sequence:

(i) Place the slide on the stage, look through the eyepiece and adjust the mirror and diaphragm to get even illumination.

(ii) Look through the eyepiece and raise the objective using coarse adjustment until the object is focussed.

(iii) Make the focus sharp with the help of diaphragm.

(iv) Look through the eyepiece and move the slide until the object is visible.

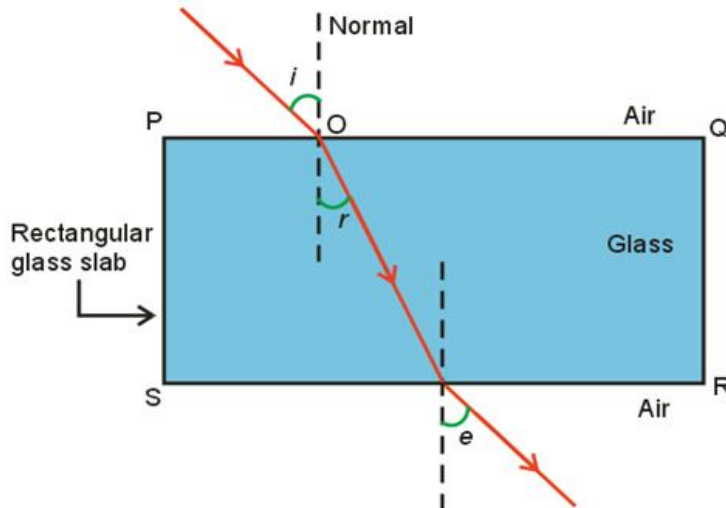
(a) (i), (iii), (iv), (ii)

(b) (ii), (iii), (iv), (i)

(c) (iv), (iii), (ii), (i)

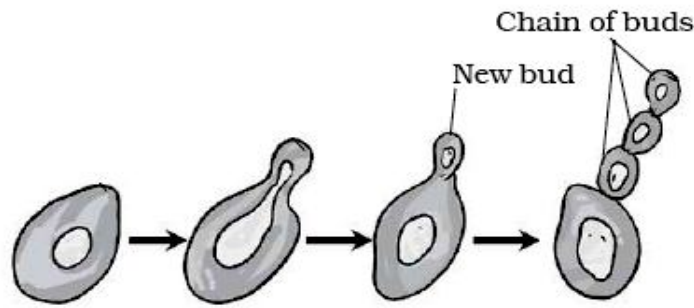
(d) (i), (iv), (ii), (iii)

27. While performing the experiments on tracing the path of a ray of light passing through a glass slab as shown in the given diagram, four students interpreted the results as given below. Which one of the four interpretations is correct?



- (a) $\angle r > \angle e$ (b) $\angle r = \angle e$ (c) $\angle i = \angle r$ (d) $\angle i > \angle r$

28. Following figure represents the reproduction in :



- (a) Amoeba (b) Yeast (c) Plasmodium (d) Hydra

29. Wing of a bird and wing of an insect are:

- (a) analogous organs (b) homologous organs
(c) locomotory organs (d) vestigial organs

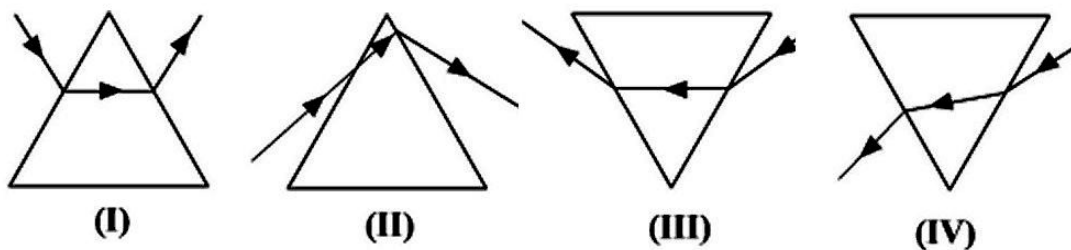
30. New species may be formed if

- (i) DNA undergoes significant changes in germ cells
(ii) chromosome number changes in the gamete
(iii) there is no change in the genetic material
(iv) mating does not take place

Select the correct statement.

- (a) (i) and (ii) (b) (i) and (iii)
(c) (ii), (iii) and (iv) (d) (i), (ii) and (iii)

31. While performing the experiment to trace the path of a ray of light passing through a glass prism, four students marked the incident ray and the emergent ray in their diagrams in the manner shown below.



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

32. Which of the following ray diagrams is correct for the ray of light incident on a lens shown in below figure?

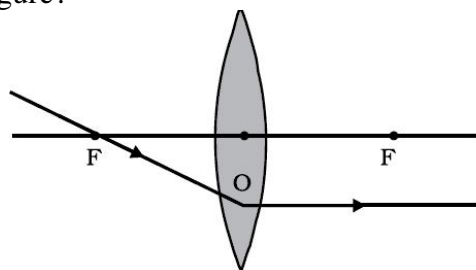


Fig. A

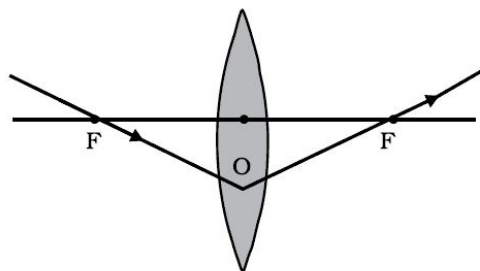


Fig. B

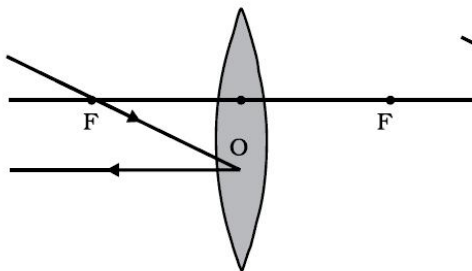


Fig. C

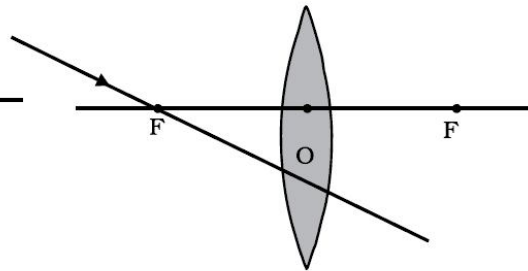


Fig. D

(a) Fig. A.

(b) Fig. B.

(c) Fig. C.

(d) Fig. D.

33. What are the factors on which the angle of deviation depends?

34. Carbon, Group (14) element in the Periodic Table, is known to form compounds with many elements.

Write an example of a compound formed with (a) chlorine (Group 17 of Periodic Table)

(b) oxygen (Group 16 of Periodic Table)

35. In the following diagram, showing the structure of embryo of a dicot seed, label the parts A, B and C.

