SUBJECT: SCIENCE

<u>BLUE PRINT : SA–II CLASS X</u>

Unit/Topic	VSA/MCQ (1 mark)	Short answer (2 marks)	Short answer (3 marks)	Long answer (5 marks)	Total
Carbon and its Compounds	4(4)	2(1)	6(2)	5(1)	**17(8)**
Periodic Classification of elements	-	-	6(2)	-	**06(2)**
How do Organisms Reproduce ?	2(2)	2(1)	6(2)	5(1)	**15(6)**
Heredity and Evolution	1(1)	-	9(3)	5(1)	**15(5)**
Light – Reflection and Refraction	4(4)	2(1)	3(1)	5(1)	**14(7)**
Human Eye	-	2(1)	3(1)	10(2)	**15(4)**
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**

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. Producers always occupy the first trophic level in any food chain. Justify the statement.

2. How is self-pollination different from the process where pollen grains are transferred to the stigma of a different flower ?

3. How could you distinguish between an alcohol and carboxylic acid in the laboratory ?

4. There is a need to dispose waste in proper manner. Justify this statement giving reasons.

5. What steps are taken by government to conserve wildlife ?

6. The ciliary muscle of a normal eye are in their
(a) most relaxed
(b) most contracted state. Mention in brief how focal length and power of eye lens will change in two cases. Give reason for the same.

7. Draw the type of reproduction as shown by the following organisms :
(a) Amoeba   (b) Bryophyllum

8. Mention three factors which can lead to rise of new species.

9. Give the reason for :
(a) Advance sunrise (b) Delayed sunset (c) Twinkling of stars.

10. Rohit wants to have an erect image of an object, using a converging mirror of focal length 40 cm.
(a) Specify the range of distance where the object can be placed in front of the mirror. Give reason for your answer.
(b) Will the image be bigger or smaller than the object ?
(c) Draw a ray-diagram to show the image formation in this case.

11. To improve the hygiene and sanitation of Railways they first came up with disposable plastic cups, then disposable Kulhads, made of clay. They were also discontinued and replaced by disposable paper cups.

(i) Which one of these you consider as a better choice ? What could be the ill effect on environment of the choice you make ?

(ii) Can you suggest some other alternative which is environment friendly to cater the needs of millions of passengers every day ?

12. Write the molecular, electronic and structural formulae of ethyne.

13. Write the names of the following functional groups.

(i) $\diagdown C = O$ (ii) $- Cl$ (iii) $- CHO$
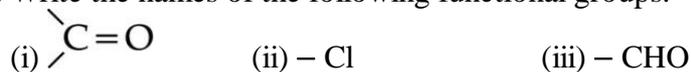
14. The position of three elements A, B and C in the periodic table is shown below :

Group → Period ↓	I	II	III	IV	V	VI	VII	VIII
1								
2							C	
3	A	B						

Giving reasons explain :

(a) Element A is a metal.

(b) Element B has larger atomic size than the element C.

(c) Element C has a valency of one.

15. Explain how the tendency of non metallic character changes on moving down a group in the periodic table ?

16. (a) What function is performed by human arms, forelimbs of dog and forelimbs of whales ?

(b) Which type of organs are these ?

(c) Why do we call them so ?

17. The statistic probability of getting a male or female child is 50%. Explain.

18. What changes occur in the female uterus in case :

(a) Fertilisation occurs

(b) Fertilisation does not occur

19. (a) Define absolute refractive index.

(b) The path of a light ray from three different media A, B and C for a given angle of incidence is shown below. Study the diagrams and answer the following questions.
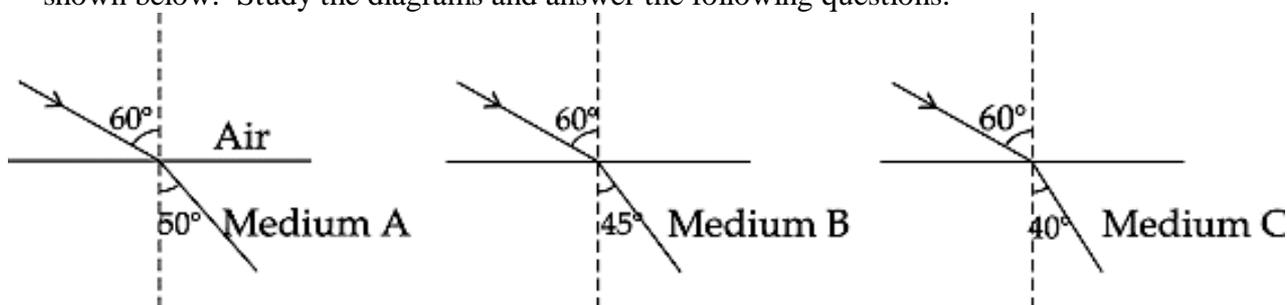
(i) Which of the three media A, B or C has maximum optical density ?

(ii) Through which of the three media, will the speed of light be maximum ?

(iii) Will the light travelling from A to B bend towards or away from the normal ?

(iv) Will the refractive index of B relative to C be more than unity or less than unity ?

20. (a) If a person wears lens of power – 6D for distant vision and for correcting his near vision he needs a lens of +2D. Determine the focal length of the lenses in both the case.

(b) Give reason for the following natural phenomenon :
  (i) Stars twinkle
  (ii) Planets do not twinkle
  (iii) Stars appear raised in the sky

21. (a) With the help of ray diagram explain hypermetropia and its correction.

(b) Mention the distance at which far point and near point of a normal eye are located.

22. (i) What are soaps ?

(ii) Explain the formation of micelle during the cleanring action of soaps and draw the structure of micelle.

(iii) Write the effect of soap in cleaning with hard water.

23. (a) What are monohybrid and dihybrid cross ?

(b) How Mendel proved that tallness is the dominant trait and dwarfness is recessive in a pea plant ? Explain with the help of a monohybrid cross.

24. Differentiate between the following :
  (a) Pollen tube and Style
  (b) Fission in *Amoeba* and *Plasmodium*
  (c) Fragmentation and Regeneration
  (d) Bud of *Hydra* and bud of *Bryophyllum*
 (e) Vegetative propagation and Spore formation

SECTION – B

25. While doing experiment to trace the path of a ray of light through a triangular glass prism a student is not getting emergent ray in straight line. The probable reason for that may be :
(1) he did not mark the boundary of prism.
(2) while performing experiment prism got displaced from its original position.
(3) pins used to trace the path were not exactly vertical.
(4) pins used to trace the path were not in straight line.
The correct answer is :-
(a) (1) only.   (b) (2) only
(c) (3) and (4)   (d) (1), (2), (3) and (4)

26. The most commonly used pair in the plant kingdom to observe homology is :
  (a) carrot, radish   (b) tomato, potato
  (c) carrot, tomato   (d) potato, sweet potato

27. A typical dicotyledon embryo consist of :
  (a) Epicotyls, hypocotyls, plumule
  (b) Embryonal axis, two cotyledons
  (c) Embryonal axis, hypocotyls
  (d) Cotyledons, plumule

28. The last step in saponification process to prepare soap is to add sodium chloride to bring about :
  (a) complete saponification   (b) complete hydrolysis
  (c) complete neutralization   (d) complete precipitation

29. Sonia took three samples each of 10 ml of water in test tubes A, B, C. She added 3 ml of liquid soap in all of them and shook them vigorously. The setup of the experiment is shown below :
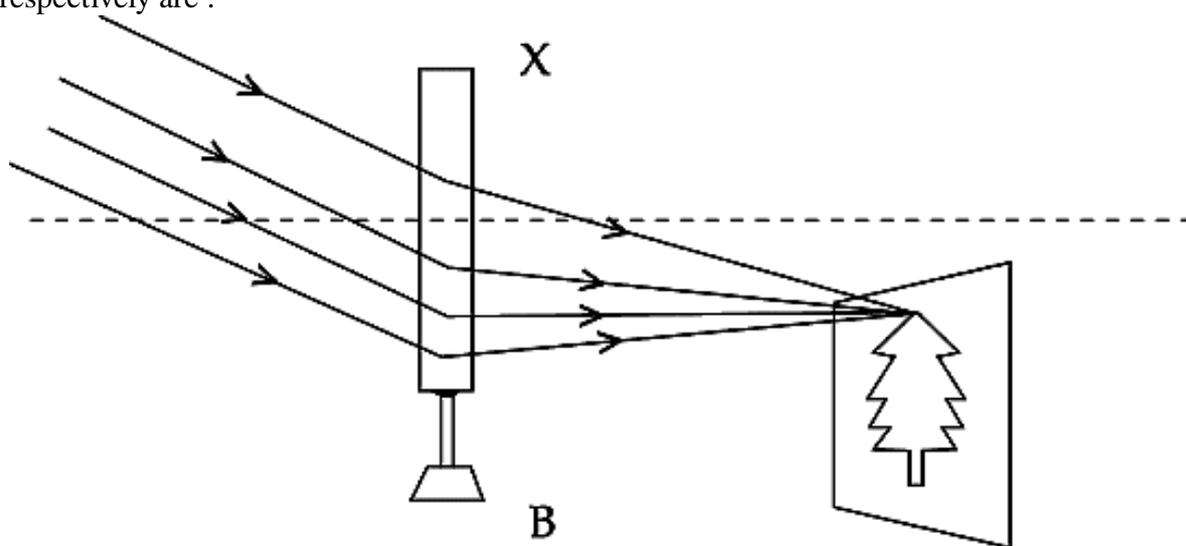
A	Rain water
B	Tap water
C	Distilled water

The test tube (s) which will have the maximum length of foam will be :
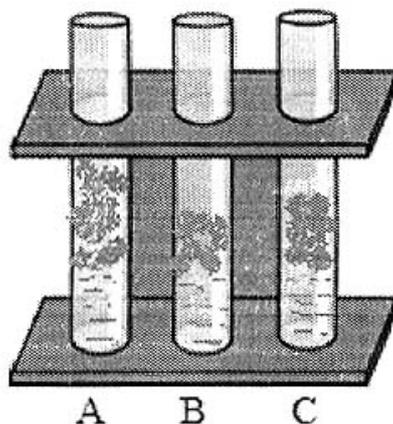
(a) A and C   (b) A and B

(c) B and C   (d) only B

30. Parallel rays , from a distant tree, incident on the device X, form its distinct image on a screen as shown. The diagram, correctly showing the image of the tree on the screen, and the device X respectively are :


(a) 'A' and convex lens

(b) 'A' and concave mirror

(c) 'B' and convex lens

(d) 'B' and concave mirror

31. To determine the focal length of a given convex lens a student obtained the image of a well illuminated distant tree on a screen. In order to find a focal length of the lens he should measure the distance (s) between the

(a) Lens and the screen only.

(b) Lens and tree only.

(c) Tree and screen only.

(d) Tree and screen and also between the lens and screen.

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32. Two students A and B are performing glass slab experiment. Student A uses a glass slab of thickness 5 cm and student B uses a glass slab of thickness 3 cm. Both take $\angle i = 30°$. Which of the following results is **incorrect** for their experiment ?
(a) Both will get same $\angle r$
(b) Both will get emergent ray parallel to incident ray
(c) Both will get $\angle i = \angle e$
(d) Both will get same lateral displacement

33. The alkali used to prepare soap is :
(a) sodium hydroxide   (b) calcium hydroxide
(c) magnesium hydroxide   (d) lithium hydroxide

34. Mention the observations of the process of binary fission in amoeba.

35. (a) Complete the ray diagram for image formation by a convex lens.
(b) Mention the size and nature of image formed in above case.
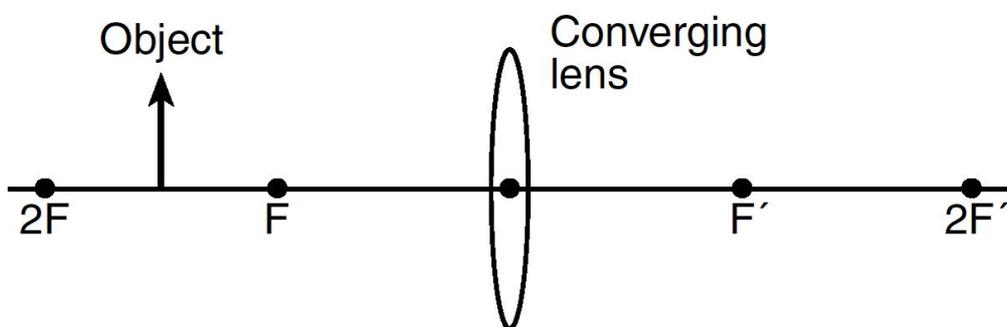
36. In the experimental set up shown below the gas 'x' evolved is passed through lime water.
(i) Name the gas 'x' evolved.
(ii) What change do you observe in the lime water ? Write the chemical equation.