

**KENDRIYA VIDYALAYA SANGATHAN  
ERNAKULAM REGION**

**SAMPLE QUESTION PAPER  
SUMMATIVE ASSESSMENT II 2012 – 13**

**CLASS X - SCIENCE**

**TIME: 3 hours**

**Max. Marks: 90**

**General Instructions:-**

- I. The question paper comprises of two sections A and B. You are to attempt both the sections
- II. All questions are compulsory.
- III. There is no overall choice. However internal choice has been provided for one question of five mark category. Only one option to be attempted
- IV. All questions of Section A and Section B are to be attempted separately.
- V. Question numbers 1 to 3 in Section A are one mark questions. These are to be answered in one word or one sentence.
- VI. Question numbers 4 to 7 are two marks questions to be answered in about 30 words each.
- VII. Question numbers 8 to 19 are three marks questions to be answered in about 50 words each.
- VIII. Question numbers 20 to 24 are five marks questions to be answered in about 70 words each.
- IX. Question numbers 25 to 42 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.

## SECTION A

- 1) Among the following which one have a triple covalent bond ?  
 $C_2H_6$ ,  $C_3H_4$ ,  $C_4H_{10}$  (1)
- 2) Mention the most easy method to detect water pollution ? (1)
- 3) Name any two oxidizing agents for alcohols? (1)
- 4) An object 2cm in size is placed 30cm in front of a concave mirror of focal length 15cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? (2)
- 5) (a) What is meant by power of accommodation of eye?  
(b) How does focal length of the eye lens change when we shift looking from distant object to nearby object? (2)
- 6) Distinguish between food chain and food web? (2)
- 7) Why do we seek construction of dams? Mention any two problems faced with the construction of large dams? (2)
- 8) Write the structural formula of the following and state whether these are isomers with reason?  
(a) 1 – butyne                      (b) 2 – butyne (3)
- 9) (a) Why ethene decolourises bromine water, but ethane not.  
(b) Write down the relevant chemical equation involved in decolourisation? (3)
- 10) Based on the behaviour towards light how substances can be classified? Give one example of each? (3)
- 11) Describe three methods of plant propagation which are commonly used for growing garden plants? (3)
- 12) Draw a heat labeled diagram of longitudinal section of a typical flower? (3)
- 13) (a) Write the electronic configurations of the following elements?  
Oxygen, Magnesium  
(b) Among  $O^{2-}$  ion and  $Mg^{2+}$  ion, which one have larger size and why? (3)

- 14) Mention any three purposes of using lens combinations in optical instruments? **(3)**
- 15) What are the consequences of ozone layer depletion? (Any three) **(3)**
- 16) What is meant by dispersion of white light? Draw a ray diagram to show dispersion of white light by a glass prism? Why do we get different colours? **(3)**
- 17) Energy flow in the biosphere is unidirectional. Comment on the statement **(3)**
- 18) Atomic numbers of the three elements A, B and C are given below.

Element	Atomic number
A	5
B	7
C	10

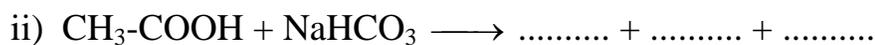
- Identify the group and period in which these elements belong? **(3)**
- 19) Why should we conserve forest and wild life? (Any three points) **(3)**
- 20) By drawing ray diagrams, show the formation of image, when an object is placed on the principal axis of a concave mirror at the following positions and write about the nature of the image in each case.
- At infinity
  - Beyond the centre of curvature
  - At the centre of curvature
  - At the principal focus
  - Between the pole and focus **(5)**
- 21) Human resources in India are depleting with increasing number of people getting infected by AIDS virus and it has become a socio economic hazard.
- Name the virus which causes AIDS?
  - Mention the modes of transmission of AIDS virus
  - What is the effect of AIDS virus on human body?
  - Give any two measures to prevent the transmission of aids virus **(5)**
- 22) An organic compound A is widely used as a preservative in pickles and has a molecular formula  $C_2H_4O_2$ . This compound react with ethanol to form a sweet

smelling compound B.

- (a) Identify the compound A
- (b) Write the chemical equation for its reaction with ethanol
- (c) Name the products formed
- (d) Name the process involved in the reaction
- (e) How can we get back the compound A from B (5)

OR

(a) Complete the following equations



(b) What is the cause of hardness of water? Why soap do not form lather with hard water? Mention the disadvantage of cleaning clothes with soap in hard water? (5)

23) (a) Distinguish between homologous and analogous organs with one example each

(b) Define F1, F2 generations

(c) Define the term variations (5)

24) Give reasons for the following

(a) Colour of clear sky is blue

(b) Sun can be seen about two minutes before actual sunrise

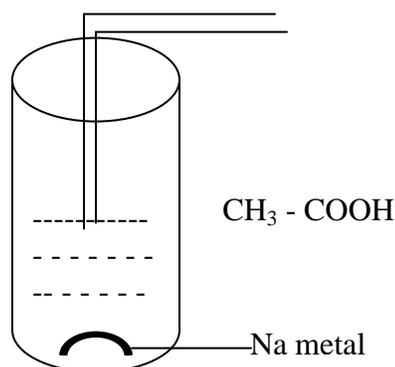
(c) Traffic light signals are of red colour

(d) Stars appears to twinkle

(e) Planets do not twinkle (5)

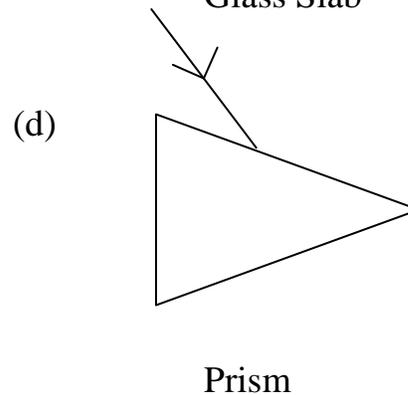
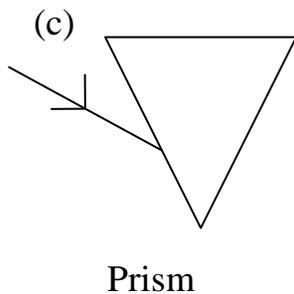
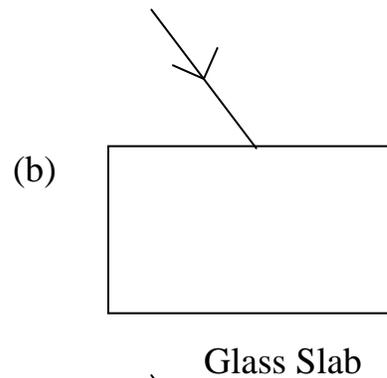
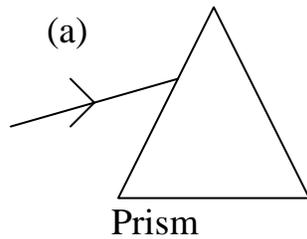
## SECTION B

25) Name the gas evolved in the given experimental set up



- (a) hydrogen  
(b) Methane  
(c) Carbon monoxide  
(d) Carbon dioxide
- 26) What would be observed when a drop of dilute ethanoic acid is put on a blue litmus paper?
- (a) Changes to red  
(b) No Change  
(c) Changes to green  
(d) Changes to white
- 27) In the saponification reaction, addition of sodium chloride help to
- (a) initiate the reaction  
(b) minimize side reaction  
(c) precipitate soap  
(d) separate the byproduct
- 28) Hard Water is
- (a) Clear liquid  
(b) Suspension  
(c) Semi solid  
(d) Colloid
- 29) 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 has to shift the mirror
- (a) towards the screen  
(b) away from the screen  
(c) either towards or away from the screen depending on position of the object  
(d) in a position very far away from the screen
- 30) In which of the following cases will no dispersion take place when sunlight

passes through it



31) A virtual erect and magnified image of an object is formed by a convex lens.

The position of the object is

- (a) between  $F$  and  $2F$
- (b) between  $2F$  and infinity
- (c) at the focus
- (d) between  $F$  and optical centre

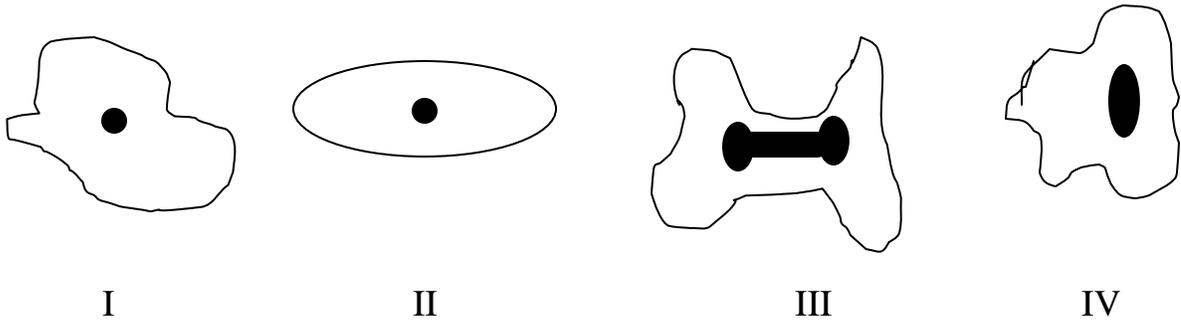
32) In order to determine the focal length of a convex lens by obtaining the image of a distant object on a screen, the position of the screen should be

- (a) perpendicular to the plane of convex lens
- (b) parallel to the plane of convex lens
- (c) inclined at an angle of  $30^\circ$  from plane of lens
- (d) anywhere in any direction

33) In an experiment the image of a distant object formed by a concave mirror is obtained on a screen. To determine the focal length of the mirror we should measure the distance between the

- (a) mirror and screen
- (b) mirror and object

- (c) object and screen  
 (d) mirror and screen and also between object and screen
- 34) A transparent refracting material which is bounded by two plane refracting surfaces is known as a
- (a) prism (b) convex lens  
 (c) glass slab (d) none of these
- 35) Shape of yeast cell is
- (a) only spherical (b) only oval  
 (c) irregular (d) both oval and spherical
- 36) Amoeba undergoing binary fission is depicted by the diagram



- (a) I (b) II (c) III (d) IV
- 37) In evolutionary terms we have more in common with
- (a) chimpanzee (b) a spider  
 (c) a bacterium (d) none of these
- 38) Which one of the following seed does not have endosperm
- (a) Maize (b) Rice  
 (c) Wheat (d) Gram
- 39) Which one of following dicot seed consist of thin flat cotyledons
- (a) Castor seed (b) Red kidney shaped bean  
 (c) Gram (d) pea

- 40) By which process dry gram gain water and smell
- (a) Osmosis (b) Exosmosis  
(c) Plasmolysis (d) Inhibition
- 41) Amphibians, reptiles , birds and mammals indicate a common ancestry as they have
- (a) two eyes (b) a tail in embryo stage  
(c) four limbs (d) dry skin
- 42) Select the incorrect statement about budding
- (a) A bud always arises from a particular region on a plant body  
(b) A bud may arise from any part of parent cell  
(c) before detaching from the parent body a bud may form another bud  
(d) A bud may separate from the parent body and develops into a new individual

\* \* \* \* \*

## MARKING SCHEME

- 1)  $C_3H_4$  (1)
- 2) Measuring  $P^H$  value using universal indicator (1)
- 3) Alkaline potassium permanganate

and (1/2 + 1/2)

Acidified potassium dichromate

- 4)  $h = +2$  cm,  $u = -30$  cm  $f = -15$  cm

$$\frac{1}{u} + \frac{1}{v} = \frac{1}{f} \quad (1/2)$$

$$\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$$

$$\frac{1}{v} = \frac{1}{-15} - \frac{1}{-30} = \frac{-1}{30} \quad (1)$$

$$U = -30 \text{ cm}$$

Screen should be placed at 30 cm in front of the mirror to obtain sharp image (1/2)

- 5) (a) Ability of eye to adjust its focal length to see hereby and distant objects clearly (1)
- (b) Focal length of eyelens decreases (1)

### 6) Food Chain

- 1) Sequential process of one organism consuming the other
- 2) Each Organism at a tropic level receives food from one group of organisms

### Food Web

- 1) Net works of food chains with inter crosses and linkages
- 2) Each organism at a tropic level receives food from more than one group of organism.

(1 + 1)

7) For irrigation and generating electricity  
(1) Social problems - displacement of people without proper rehabilitation and compensation

( $\frac{1}{2}$ )

Economic problem - huge input without much benefits ( $\frac{1}{2}$ )

8) Structural Formula,

1 – butyne (1)

2 – butyne (1)

yes, both are isomers (

$\frac{1}{2}$ )

Reason ( $\frac{1}{2}$ )

9) (a) ethene being an unsaturated hydrocarbon add bromine and change to

colourless 1,2 – dibromoethane, (1)

but ethane is saturated hydrocarbon and no addition reaction with bromine (1)

(b)  $\text{CH}_2 = \text{CH}_2 + \text{Br}_2 \rightarrow \text{CH}_2\text{—CH}_2$

(brown)

| |

Br Br

(colourless) (1)

10) Transparent ---- Light can pass through easily

eg: air, water ( $\frac{1}{2} + \frac{1}{2}$ )

Opaque ---- does not allow light to pass through

eg: wood, stone etc ( $\frac{1}{2} + \frac{1}{2}$ )

Translucent ----- light passes only partially

eg: cloud, waxpaper ( $\frac{1}{2} + \frac{1}{2}$ )

11) Grafting – brief description (1)

Cutting - brief description (1)

Layering - brief description (1)

12) Diagram – with labeling ,

Stigma, style, ovary, anther, filament, petal, sepal (1 ½ + 1 ½)

13) (a) Electronic Configurations,

Oxygen – 2, 6

Magnesium – 2,8,2 (½ + ½)

(b)  $O^{2-}$  --- 2,8

$Mg^{2+}$  -- 2,8

$O^{2-}$  larger in size (1)

Reason.... (1)

14) [1] To increase the magnification of image (1)

[2] To increase the sharpness of image (1)

[3] To erect the final image (1)

15) [1] Temperature changes and rainfall failures (1)

[2] Loss of immunity in humans

(1)

[3] Destruction of aquatic life and vegetation

(1)

( Any other points also)

16) Definition

ray diagram (1)

Reason – lights of different colours travel with different speed in glass

(1)

17) Sun as the only source of energy which the plants use for photosynthesis and

thereby to store food (1)

Flow of energy from sun into the biosphere (1)

Release of energy in the form of heat (1)

18)	Atomic Number	Electronic Configuration	Group	Period	
A	5	2,3	13	2	( $\frac{1}{2} + \frac{1}{2}$ )
B	7	2,5	15	2	( $\frac{1}{2} + \frac{1}{2}$ )
C	10	2,8	18	2	( $\frac{1}{2} + \frac{1}{2}$ )

19) [1] Essential for ecological balance

[2] Maintain biodiversity

[3] Prevention of flood or any other points

(1 + 1 + 1)

20) Each ray diagram with nature of image

(1 + 1 + 1 + 1 + 1)

21) [a] HIV

(1)

[b] Sexual contact,  
blood transfusion

(1 + 1)

(Any other)

[c] destroys white blood cells,  
reduce the immunity

( $\frac{1}{2} + \frac{1}{2}$ )

[d] use of condom,

Using sterilized syringes ( Any one)

(1)

22) [a]  $\text{CH}_3\text{-COOH}$  ( ethanoic acid)

(1)

Conc.  $\text{H}_2\text{SO}_4$

[b]  $\text{CH}_3\text{-COOH} + \text{C}_2\text{H}_5\text{OH} \longrightarrow \text{CH}_3\text{-COOC}_2\text{H}_5 + \text{H}_2\text{O}$

(1)

[c] Ethyl ethanoate

(1)

[d] Esterification

(1)

[e] Saponification

(1)

OR

[a] (i)  $n\text{CH}_2=\text{CH}_2 \longrightarrow$

$\text{-(CH}_2\text{-CH}_2\text{)-}$

(1)



[b] Presence of  $\text{Ca}^{2+}$  ions and  $\text{Mg}^{2+}$  ions (1)

Formation of insoluble calcium and magnesium salts with soap (1)

Soap get wasted simply as it do not lather with soap (1)

23)

a, Homologous

Organs which perform different functions but have similar structure and origin.

eg :- arm of man or any other.

Analogous

Organs which have similar appearance and functions but different structure and origin.

Eg : wings of a butterfly (1 + 1)

b. F1 generation is the generation of hybrids derived from a cross between two genetically different homozygous individuals.

F2 generation is the generation produced as a result of interbreeding between the individuals of F1 generation.

(1 + 1)

c, Variations are difference found in structure, function, behaviors and genetic make up of different individuals of same parentage, variety, race and species.

(1)

24) Correct reasons

(1+1+1+1+1)

## SECTION B

(25) a

(26) a

(27) c

(28) a

(29) c

(30) b

(31) d

(32) b

(33) a

(34) a

(35) b

(36) c

(37) d

(38) d

(39) a

(40) d

(41) c

(42) a