

SUMMATIVE ASSESSMENT – II
SCIENCE Class – X

Time 3hrs

Max marks 90

- 1) Write the SI unit for power of the lens. (1)
- 2) Name the chemical responsible for depletion of ozone layer. (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.
- (a) At infinity
 - (b) Beyond the centre of curvature
 - (c) At the centre of curvature
 - (d) At the principal focus
 - (e) Between the pole and focus (5)

OR

Explain the refraction of light through a glass prism with a neat ray diagram.

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.

- (a) Name the virus which causes AIDS?
- (b) Mention the modes of transmission of AIDS virus
- (c) What is the effect of AIDS virus on human body?
- (d) Give any two measures to prevent the transmission of aids virus (5)

OR

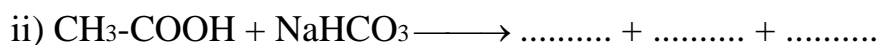
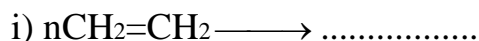
Draw a neat labeled diagram of section of flower and label its parts

22) An organic compound A is widely used as a preservative in pickles and has a Molecular formula $C_2H_4O_2$. This compound reacts 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?

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

(b) Define F1, F2 generations

(c) Define the term variations (5)

OR

(a) Differentiate between self pollination and cross pollination.

(b) Differentiate between pollination and fertilization.

(c) Give an example of unisexual flower.

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)

OR

A student has difficulty in reading the black board while sitting the last row. What Could be the defect he is suffering from? How can it be corrected?

Draw a ray diagram for (a) The defective eye. (b) Its correction.

SECTION - B

25) 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

26) In the saponification reaction, addition of sodium chloride helps to

- (a) initiate the reaction
- (b) minimize side reaction
- (c) precipitate soap
- (d) separate the byproduct

27) Hard Water is

- (a) Clear liquid
- (b) Suspension
- (c) Semi solid
- (d) Colloid

28) 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

29) 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

30) 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) None of the above

31) 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

32) Shape of yeast cell is

- (a) only spherical
- (b) only oval
- (c) irregular
- (d) both oval and spherical

33) In evolutionary terms we have more in common with

- (a) a Cat
- (b) a spider
- (d) a bacterium
- (d) none of these

34) Which one of the following seed does not have endosperm

- (a) Maize
- (b) Rice
- (c) Wheat
- (d) Gram

35) Which one of following dicot seed consist of thin flat cotyledons

- (a) Castor seed
- (b) Red kidney shaped bean
- (c) Gram
- (d) pea

36) By which process dry gram gain water and swell

- (a) Diffusion
- (b) Exosmosis
- (c) Plasmolysis
- (d) Imbibition

37) 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

38) 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

39. In budding

- a) Cell divides transversely.
- b) Cell divide longitudinally
- c) Nucleus divides followed by the development of protuberance.
- d) A small protuberance develops followed by nuclear division.

40. Which of the following part is not found in a gram seed?

- a) Cotyledons
- b) Endosperm
- c) Radicle
- d) Plumule

41. Which of the following sodium compound is heated with castor oil in the making of soap?

- a) Na_2CO_3
- b) NaHCO_3
- c) NaOH
- d) CH_3COONa

42. A basket of vegetables contain carrot, potato, radish and tomato. Which of them represent the correct homologous structures?

- a) Carrot and potato
- b) Carrot and tomato
- c) Radish and carrot
- d) Radish and potato

MARKING SCHEME

- 1) Dioptre (1)
- 2) Chlorofluro carbons (1)
- 3) Alkaline potassium permanganate
And Acidified potassium dichromate ($\frac{1}{2} + \frac{1}{2}$)
- 4) $h=+2$ cm, $u=-30$ cm $f=-15$ cm
 $U = -30$ cm
Screen should be placed at 30 cm in front of the mirror to obtain sharp image (2)
- 5) (a) Ability of eye to adjust its focal length to see hereby and distant objects clearly (b) Focal length of eye lens decreases (1)
- | <u>Food Chain</u> | <u>Food Web</u> |
|--|--|
| 1) Sequential process of one organism consuming the other | Network of food chains with intercrosses and linkages |
| 2) Each Organism at a tropic level receives food from one group of organisms | Each organism at a tropic level receives food from more than one group of organisms. |
- (1 + 1)
- 7) For irrigation and generating electricity (1)
- (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) Reaction (1)

- 10) Transparent ---- Light can pass through easily
 eg: air, water (1/2 + 1/2)
- Opaque ---- does not allow light to pass through
 eg: wood, stone etc (1/2 + 1/2)
- Translucent ----- light passes only partially
 eg: cloud, waxpaper (1/2 + 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 1/2 + 1 1/2)
- 13) (a) Electronic Configurations,
 Oxygen – 2, 6
 Magnesium – 2,8,2 (1/2 + 1/2)
 (b) O₂- --- 2,8
 Mg²⁺ -- 2,8
 O₂-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 (1)
 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 Group	Period	Configuration
A	5	2,3	13	2 (½ + ½)
B	7	2,5	15	2 (½ + ½)
C	10	2,8	18	2 (½ + ½)

- 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)

OR

Explanation (3) Diagram (2)

- 21) [a] HIV (1)
 [b] Sexual contact, blood transfusion (1 + 1)
 [c] destroys white blood cells, reduce the immunity (½ + ½)
 [d] use of condom,
 Using sterilized syringes (Any one) (1)

Or

Diagram (3) Label (2)

22) [a] CH₃-COOH (ethanoic acid) (1)

Conc. H₂SO₄

- [b] CH₃-COOH + C₂H₅OH → CH₃-COOC₂H₅ + H₂O (1)
 [c] Ethyl ethanoate (1)
 [d] Esterification (1)
 [e] Saponification (1)

OR

- [a] (i) nCH₂=CH₂ → (-CH₂ -CH₂ -) (1)
 (ii) CH₃-COOH + NaHCO₃ → CH₃-COONa + H₂O + CO₂ (1)
 [b] Presence of Ca²⁺ ions and Mg²⁺ 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. 2 points of difference (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)

or

- a) When the pollen of a flower falls on the stigma of the same flower the process is called as self pollination. If the pollen falls on the stigma of a different flower The process is called as cross pollination. (1+1)
 b) The transfer of pollen from anther to stigma is called pollination. The fusion of male and female gamete is called fertilization. (1+1)
 Pappaya, cucumber, water melon. (1)

24) Correct reasons (1+1+1+1+1)

OR

Myopia, Correction using spectacles with concave lens. 1+1
 Ray Diagrams (1 ½ +1 ½)

SECTION B

25. (a)
 26.(c)
 27. (a)
 28. (c)
 29.(c)
 30. (a)
 31.(a)
 32.(b)

33.(d)

34. (d)

35.(a)

36.(d)

37. (c)

38. (a)

39. (c)

40.(b)

41.(c)

42. (c)