

SUMMATIVE ASSESSMENT – II For 2016-17 (Code: L9YVHM) SCIENCE Class – X SET- 1

SECTION - A

1. Find the atomic number of an element whose electronic configuration is 2, 8, 5.
2. In case of round yellow and green wrinkled, which is a dominant trait ?
3. What does the presence of Coliform bacteria in water indicate?
4. State the function of the following in human eye : (a) Pupil (b) Optic nerve
5. Explain water harvesting ? List any two water harvesting structures.
6. Mention two examples each of biotic components and abiotic components of ecosystem.
7. Write any three physical properties and three uses of ethanol.
8. Explain how covalent bonds are formed. Mention two physical properties of covalent compounds. Draw electron dot structure of CCl_4 .
9. Locate the position in the modern periodic table of the following elements on the basis of their properties
 - (a) An element which is an inert gas with atomic number 10.
 - (b) An element which is tetravalent and basic element of organic chemistry.
 - (c) A soft metal stored under kerosene and cut with knife.
10. Out of the following elements
H(1); Be (4); Na(11); Mg (12)
 - (a) Write the pair elements having similar chemical properties.
 - (b) state the group number of each pair.
 - (c) name one other element belonging to each of these groups.
11. (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 ?
12. Mendel made two different types of cross-mono hybrid and di hybrid. Why did he obtain different type of ratios in his experiments ?
13. Why does Planaria reproduce by regeneration? Explain the process.
14. DNA content has the tendency to double itself during sexual reproduction due to combining of the genetic materials from two parents.
How can the problem of DNA doubling be solved to maintain the consistency of the genetic material throughout the species?
15. Variation is useful for the survival of species over long time. But the variants have unequal chances of survival. Explain this statements
16. Show with the help of a diagram how refraction taking place in the atmosphere makes stars twinkle.
Why do stars twinkle but not the planets ?
17. (a) Define magnification by a spherical mirror and express it in terms of object distance and image distance for the mirror.
 - (b) The magnification produced by a convex lens is – 2. What is meant by this statement and also write the information regarding image obtained from it ?

18 An estimated 50 million tons of E-waste are produced each year. The USA discards 30 million computers each year and 100 million phones are disposed off in Europe each year.

The Environmental Protection Agency estimates that only 15-20% of e-waste is recycled, the rest of these electronics go directly into landfills and incinerators.

- (a) Mention any two possible reasons for generation of E-waste in such a large amount.
- (b) Suggest any two ways by which you can help in reducing the e-waste in the environment ?
- (c) Mention the associated values.

19 Write the general formula of alkene and alkyne. Draw the electron dot structure of ethene and ethyne and write their molecular formula with structural formula.

20 (a) Why do we say that homozygous plants produce pure progeny?

- (b) Define heterozygous.
- (c) Explain how the process of speciation takes place.

21. Different organisms reproduce by different methods suitable to their body designs.

- (a) Justify the above statement using examples of three different organisms which reproduce by different methods of asexual reproduction.
- (b) Differentiate between sexual and asexual modes of reproduction.

22 (a) Define angle of deviation. Why do different components of white light split up into spectrum when it passes through a triangular glass prism ?

(b) What is rainbow? State the two necessary conditions for the formation of rainbow in the sky.

23 (a) Define lens.

- (b) Without touching the surface how would you differentiate between convex lens and concave lens.
- (c) State the behavior of light ray when it passes from optical centre of a lens. Show it on a figure for both type of lens.
- (d) Draw ray diagram to show the formation of image by convex lens when the distance of object from lens is equal to its focal length. Mention its position and nature.

24. (a) Write relation between u , v , f for lens and for mirrors where u , v , f are object distance, image distance and focal length respectively.

(b) The magnification produced by a concave mirror is $m = + 4$. Write the information about the image given by this statement.

(c) Draw a ray diagram for the following and show the formation of the images in case of concave mirror when the object is placed : (i) Between the pole and focus point (ii) at the centre of curvature

SECTION - B

25 In a saponification reaction, fats and oils are treated with:

- (a) A strong acid (b) A weak base (c) A weak acid (d) A strong base

26 While preparing soap in the laboratory, Sonia added "X" to vegetable oil and stirred the mixture. She observed that the test tube became hot, then she added sodium chloride and after sometime "Y" settled at the bottom of test tube.

The substances "X" and "Y" are :

- (a) Sodium carbonate and soap (b) Sodium hydroxide and glycerol
(c) Sodium carbonate and soap (d) Sodium hydroxide and soap

27. The water that lathers well with soaps is :

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

28. While performing the experiment "to determine the focal length of a concave mirror", four students A, B, C and D obtained the image of a distant tree on a screen and made the following observations that the image is :

- (A) real , erect and small
(B) virtual, erect and small
(C) real, inverted and small.
(D) virtual, inverted and small

Who has made the correct observation.

- (a) (A) (b) (B) (c) (C) (d) (D)

29. A student is determining the focal length of a concave mirror by obtaining a sharp image of a distant object .

To obtain the image on a screen the student should move the

- (a) Mirror slightly towards the screen.
(b) Screen slightly away form the mirror.
(c) Screen and the mirror away from the object.
(d) Screen and mirror towards the object.

30. While performing the experiment with a rectangular glass slab, the incident angle should be in the range of :

- (a) 0° – 30° (b) 30° – 60° (c) 60° – 90° (d) more than 90°

31. A student while doing the experiment of tracing the path of ray of light through a triangular glass prism is not able to see the image of object (pins).

This may be because

- (a) the pins used as object were placed parallel to the face of the prism.
(b) paper on which prism is placed was white.
(c) pins were placed on the incident ray.
(d) there was brightness in laboratory.

32. Tendrils of pea and spines of Berberis are homologous because spines of Berberis are modified leaves.

Their function is to :

- (a) do photosynthesis (b) do protection of plant
(c) support the plant (d) do reproduction

33. The part of a dicot seed responsible for its germination :

- (a) Hilum (b) Micropyle
(c) Radicle (d) Plumule

34. A student performed an experiment to study the following properties of Acetic acid and recorded her observations as shown in table:

Sl.No	Property	Observation
1.	Colour of Acetic acid	Colourless
2.	Odour of Acetic acid	Fruity smell
3.	Nature of Acetic acid	Acidic
4.	Gas evolved by the action of Acetic acid on baking soda	H ₂ gas

Out of the above four observations given : (i) which two are correct and (ii) correct the two incorrect observations.

35. Mention the observations of budding in yeast.

36. An object is placed at $2F_1$ in front of a convex lens. What is the (a) Position (b) Size (c) Nature of image?



Solution: SUMMATIVE ASSESSMENT – II (for 2016-17) {Code: L9YVHM} SCIENCE Class – X

1	15	1
2	Round yellow	1
3	Contamination by disease causing micro-organisms	1
4	(i) It regulates the amount of light entering in our eye. (ii) It carries the signals of image to the brain.	2
5	Capturing rain water for later use. Lakes, small pits, tanks or any other	2
6	Biotic components – plants, animals, microorganisms (any two), Abiotic components – sunlight, water, wind etc. Or any other, (any two)	2
7	(i) Liquid at room temperature (ii) Soluble in water (iii) low melting and boiling point/burning taste (i) As medicine (ii) As solvent (iii) As laboratory reagent	3
8	Camphor and alcohol burns with a blue flame and there is no sooty deposit on the metal plate. Thus camphor and alcohol are saturated hydrocarbons. Naphthalene burns with a yellow flame with lots of sooty smoke. Therefore, unsaturated hydrocarbon.	
9	(a) Neon – group 18 and period 2 (b) Carbon - group 14 and period 2 (c) Sodium – group 1 and period 3 Potassium – group 1 and period 4	3
10	(a) Hydrogen and sodium Beryllium and Magnesium (b) H and Na –1 Be and Mg – 2 (c) 1 – Li or K (Any one) 2 - Ca	3

- 11 (a) Human arm – holding things Forelimb of dog – running Forelimb of whale – paddles 3
 (b) Homologous, (c) same origin, diff functions.
- 12 Monohybrid – involves the inheritance of only one dominant and one recessive character 3
 Dihybrid – has two dominant and two recessive characters which segregate independently.
- 13 Has specialized cells 3
 Organism gets cut into many pieces and each piece gives rise to a new individual
 Cell proliferation makes large number of cells
 Different cells change to become different tissues
 Changes take place in an organized sequence
- 14 Germ-cells from two individuals combine 3
 Chromosome number and DNA content is halved in special lineage cells in specialized organs
 Takes place in reproductive cells maintaining the DNA content
- 15 If organisms are suited to a particular niche, drastic changes in the niche could wipe out that 3
 population
 If some variations are there, few individuals might survive
 Depending on whether the variations are useful to the change in the environment some variants survive whereas others do not
- 16 Planets do not twinkle as they are closer to earth and are seen as extended sources. 3
- 17 (a) Definition of magnification $m = \frac{v}{u}$ (b) $m = \frac{h_i}{h_o} = -2 \Rightarrow h_i = -2 h_o$ 3
 The size of image is two times the size of object – *ve* sign shows the image is inverted and real
- 18 (a) Improvement in our life style has led to use of more of electronic gadgets like computers, 3
 laptops, mobile phones etc.
 The companies in order to increase their sales keep on launching new upgraded versions which attract the buyers and increase the waste.
 (b) Think about the utility and then only buy the upgraded models not just because friends are having so I should also buy it.
 Try to reuse the old TV, computers, mobile phones or other electronic gadgets if it is in working condition by selling/giving it to the needy.
 (c) concern towards the society, environment friendly
- 20 (a) Breed true as all of their gametes contain the same allele either TT or tt. 5
 (b) Heterozygous : Definition (c) Genetic Variation Natural Selection Genetic Drift.
- 21 (a) Amoeba – Binary fission Plasmodium – Multiple fission Hydra – Budding Explain 5
- 22 (a) The peculiar shape of the prism makes the emergent ray bend at an angle to the direction of 5
 incident ray. This angle is called the angle of deviation.
 When white light passes through a triangular glass prism the different colours of light have different wavelengths and bend through different angles. The violet coloured light bends the most and the red coloured light bends the least

(b) A rainbow is a natural spectrum appearing in the sky after a rain shower. It is caused by dispersion of sunlight by tiny water droplets, present in the atmosphere.

Two necessary conditions for the formation of rainbow in the sky are :

- (i) Water droplets should be there in the air (i.e. during the dizzling /just after the rain shower)
- (ii) The sun rays should be coming from behind us.

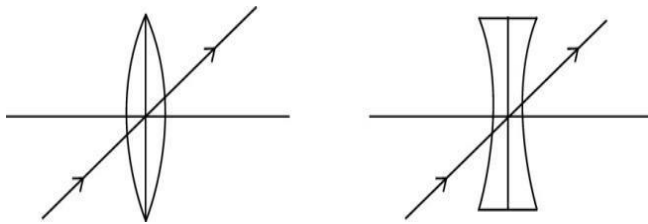
23 (a) Lens is a portion of transparent material bound by two surfaces of which one or both are spherical with different curvatures.

5

(b) Convex lens: Both the surfaces are raised in the middle. It is thicker in the middle.

Concave lens: Both the surfaces are depressed in the middle. It is thinner in the middle.

(c) It will pass undeviated



24. (b) It means the height of image is 4 times the height of object and image virtual and erect.

25 (d) 26 (d) 27(b) 28(c) 29(a) 30(b) 31(a) 32(b) 33 (b) Microplye

34 (i) Sr No. 1 and 3 correct (ii) Sr No. 2. Like vinegar Sr No. 4 - CO₂ gas

35 (i) a small protuberance appears. (ii) growing of size of protuberance.

(iii) another bud appears at the tip. (iv) resulting a chain of yeast cells.

36. (a) Image of an object is formed at 2F₂ (b) Size of the image is equal to object (c) Image is real and inverted