
CBSE Sample Paper-05 (Unsolved)
SUMMATIVE ASSESSMENT -II
SCIENCE (Theory)
Class – X

Time allowed: 3 hours

Maximum Marks: 90

General Instructions:

- a) All questions are compulsory.
- b) The question paper comprises of two sections, A and B. You are to attempt both the sections.
- c) Questions 1 to 3 in section A are one mark questions. These are to be answered in one word or in one sentence.
- d) Questions 4 to 6 in section A are two marks questions. These are to be answered in about 30 words each.
- e) Questions 7 to 18 in section A are three marks questions. These are to be answered in about 50 words each.
- f) Questions 19 to 24 in section A are five marks questions. These are to be answered in about 70 words each.
- g) Questions 25 to 27 in section B are 2 marks questions and Questions 28 to 36 are multiple choice questions based on practical skills. Each question of multiple choice questions is a one mark question. You are to select one most appropriate response out of the four provided to you.

Section A

1. Give an example of reaction catalysed by an enzyme.
2. Which spherical mirror does always produce a virtual, erect and diminished image of an object?
3. Name two main abiotic factors, which affect human environment.
4. How does the electronic configuration of an atom relate to its position in the modern periodic table?
5. "Genes and chromosomes have similar behaviour" Justify.
6. When two lenses of focal length +10 cm and -5 cm are placed in contact, then find the net power.
7. In a group reactivity of metals increases while those of non-metals decreases. Explain.
8. Ethanol is used on a large scale at commercial level. This is a very useful chemical. It is commonly called alcohol and is the active ingredient of alcoholic drink. But consumption of alcohol also causes drunkenness and this practice is socially condemned.

Read the above text and answer the following questions:

- (a) As a responsible student of class, what steps would you take to discourage the use of alcohol?
- (b) What values did learners have learnt from the above text?

[Value Based Question]



9. Fertilization is possible if ovulation has taken place during middle of the menstrual cycle. Give reason.
10. What is the importance of DNA copying in reproduction?
11. Describe surgical method of birth control.
12. Draw a schematic diagram to explain the independent inheritance of two separate traits, shape and colour of seeds.
13. An object is kept in front of a concave mirror of focal length 15 cm. The image formed is three times the size of object. Calculate two possible distances of the object from the mirror.
14. Draw a ray diagram to show the image of an object placed between f and $2f$ of a thin convex lens. Deduce the relation between the object and image distance and focal length.
15. Where should an object be placed from a converging lens of focal length 20 cm, so as to obtain a real image of magnification 2 ?
16. Explain the role played by:
 - (a) iris (b) pupil (c) cornea (d) retina
17. How do harmful chemicals enter food chain?
18. "Economic growth and ecological conservation should go hand in hand." Explain why?
19. (a) Name element of group 2 belonging to 3rd and 4th period.
 (b) Name the element having highest ionization energy in periodic table.
 (c) Draw electron dot structure of:
 - (i) H₂O (ii) CH₄ (iii) NH₃ (iv) BF₃
- (d) Differentiate between ores and minerals.

Or

- (a) Write the name and symbol of group 17 element belonging to second period.
 - (b) Write electronic configuration of K(19). To which group of periodic table does it belong?
 - (c) What are substitution reactions? Give one example.
 - (d) What happens when acetic acid reacts with sodium bicarbonate? Give chemical reaction involved.
 - (e) Why does carbon form covalent bonds?
20. (a) Write the name and molecular formula of an organic compound having its name suffixed with -ol and having two carbon atoms in the molecule. With the help of a balanced chemical equation indicate what happens when it is heated with excess of conc. H₂SO₄?
 - (b) What is substitution reaction? Give an example.



Or

- (a) With the help of an equation, state what happens when Ethanoic acid reacts with a base?
- (b) Why are coal and petroleum called fossil fuels?
- (c) What type of fuels (i) burn without a flame and (ii) burn with a flame? (d) Why is conversion of ethanol to ethanoic acid an oxidation reaction?

21. Describe three ways in which individuals with a particular trait may increase in population.

Or

Give salient features of Darwin's theory of natural selection.

22. How are blood groups inherited in humans?

Or

- (a) Give three important features of fossils with the help in study of evolution. (b) How does taxonomy support the evolution?

23. Draw a ray diagram to show the formation of a three times magnified (i) real image, (ii) virtual image of an object kept in front of a converging lens. Mark the position of object F, 2F, O and position of image clearly in the diagram.

An object of size 5 cm is kept at a distance of 25 cm from the optical centre of a converging lens of focal length 10 cm. Calculate the distance of the image from the lens and the size of the image.

Or

- (a) How can you distinguish between a plane mirror, a convex mirror and a concave mirror, just by looking at the image formed by them?
 - (b) The lens prescribed by the doctor has a power equal to +2.0 D. What does it mean?
 - (c) What would be the approximate focal length of a spherical lens preferred to use while reading small letters found in a dictionary?
24. (a) The human eye focuses objects at different distances by adjusting the focal length of the eye lens. Name this phenomenon.
- (b) Draw the human eye diagram and label the following parts:
(i) iris, (ii) pupil, (iii) ciliary muscles.



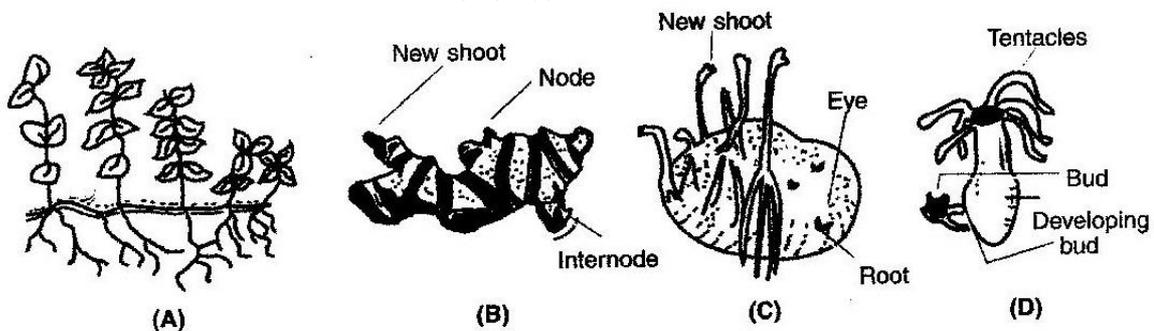
- (c) What are the role played by them in the working of eye?
 (d) In which part of the eye electrical signal are generated and why?

Or

What is refraction? Write the basic laws of refraction. What happens to the frequency, velocity and wavelength as light moves from one medium to another? Based on the bending in refraction, how can you identify the nature of the medium?

Section B

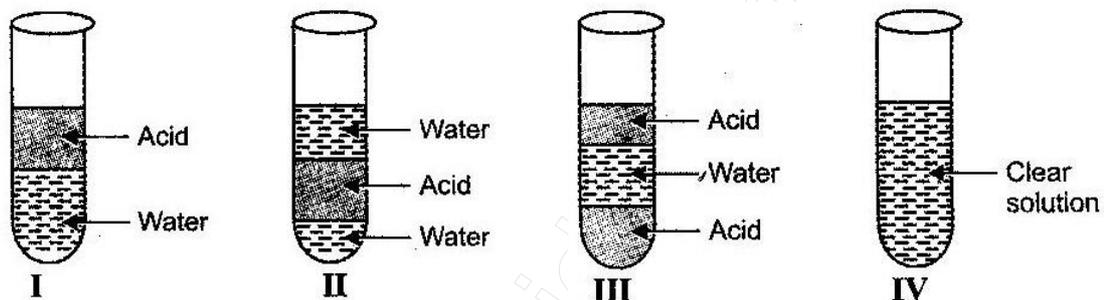
25. (a) Acetic acid, when dissolved in water, it disassociates into ions reversely. Why? (b) Give the reaction involved.
26. (a) Which is not a vegetative propagation in the following answer? (b) Give the reason for your answer.



27. When light from free space bends towards normal, on hitting a surface, then what should be its refractive index(μ) ? Is it $\mu > 1$, < 1 or $\mu = 2$? Justify your answer.
28. 5 mL of dilute acetic acid was added to 5 mL of water and the mixture was shaken for one minute. It was observed that:
- the turbidity appeared in the test tube.
 - the acid formed a separate layer at the bottom.
 - water formed a separate layer at the bottom.
 - a clear solution was formed.



29. 2 mL of acetic acid was added to equal volume of water and the mixture was shaken well for one minute and allowed to settle. The correct representation of the observation made would be as given in test tube:



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

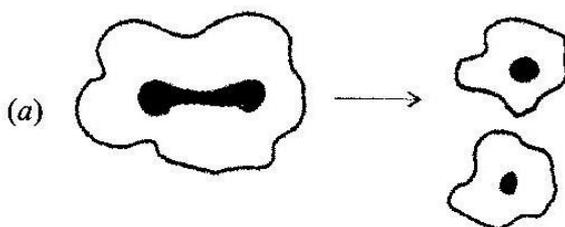
30. In binary fission:

- (a) The identity of parent body is maintained after reproduction.
- (b) The parent body is lost after reproduction.
- (c) The parent body enlarges.
- (d) None of these.

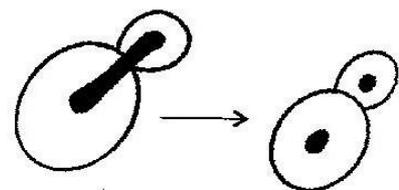
31. The method of multiplication in the species without seeds:

- (a) Binary fission (b) Budding
- (c) Vegetative propagation (d) Multiple fission

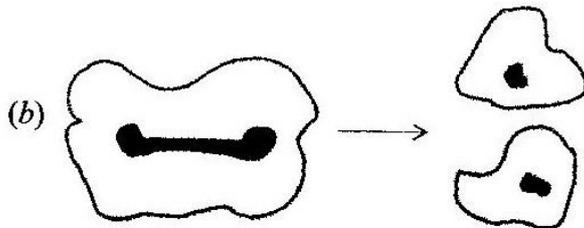
32. Which one out of the following sets of diagrams correctly depicts reproduction in Amoeba and yeast:



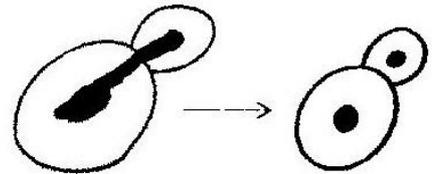
Budding in amoeba



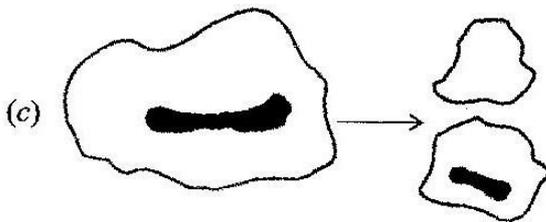
Binary fission in yeast



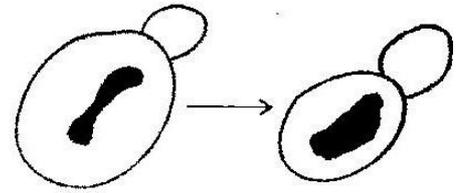
Binary fission in amoeba



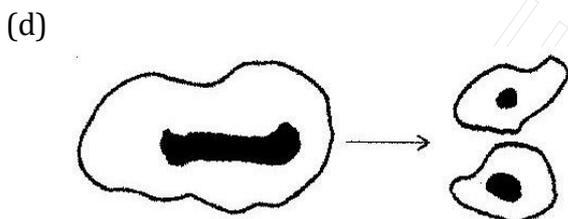
Budding in yeast



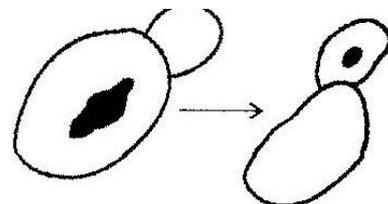
Binary fission in amoeba



Budding in yeast



Budding in amoeba



Binary fission in yeast

33. "Like begets like an important and universal phenomenon of life" is due to
 (a) eugenics (b) morphology (c) genetics (d) physiology
34. Three students measured the focal length of a convex lens using parallel rays from a distant object. All of them measured the distance between the lens and the inverted image on the screen. **Student A** saw a sharp image on the screen and labelled the distance as f_1 . **Student B** saw a slightly larger blurred image on the screen and labelled the distance as f_2 . **Student C** saw a slightly smaller blurred image on the screen and labelled the distance as f_3 . The relation between the three measurements would most likely:



- (a) $f_1 = f_2 = f_3$ (b) $f_1 < f_2$ and f_3 (c) $f_3 < f_1 = f_2$ (d) $f_1 < f_2$ and $f_1 = f_3$

35. A student sitting on the last bench, can read the letters written on the black board but is not able to read the letters written in his text book. Which is the following statement regarding the above condition is correct:
- (a) The near point of his eyes has receded away.
 - (b) The near point of his eyes has come closer to him.
 - (c) The far point of his eyes has come closer to him.
 - (d) The far point of his eye has receded away.
36. 'Chipko Andolan' was launched for the protection of:
- (a) grasslands (b) forests (c) livestock (d) wetlands