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**CBSE Sample Paper-04**  
**SUMMATIVE ASSESSMENT –II**  
**SCIENCE (Theory)**  
**Class – X**

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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.

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**Section A**

1. What is acid rain?
2. Name the product formed beside soap that is obtained during saponification process.
3. Are the laws of reflection applicable to plane surfaces also valid for curved surfaces?
4. In what S.I. unit is power of lenses rated? A convex lens has a focal length of 50 cm, Calculate its power.
5. How does the metallic character change along the period?
6. Name one organ analogous to the wing of the bird. Why are they both analogous? Can you include the wing of bat also with them under the same category? Give reason.
7. What is accommodation? Explain how does the ciliary muscles do help in accommodation?
8. What is persistence of vision? How do we make a motion picture possible?
9. Why are the some substances biodegradable and some non-biodegradable?
10. Write the cause of depletion of ozone layer in the atmosphere.
11. What are homologous organs? How do they provide evidence in support of evolution?
12. Explain how a new species is generated.
13. Define Mendeleev's Periodic Law. Give two advantages of Mendeleev's Periodic Table.
14. Why was it necessary to change the basis of classification from atomic mass to atomic number.
15. How does binary fission differ from multiple fission?
16. Explain double fertilization in plants.

17. Ramesh and his friends performed well in SA-1. They wanted to go for outing, so they made a request to the principal in this regard. It was decided that they will go by cycle to witness the famous Ranapur water fountain show, situated nearly eight kilometers from their place, with their physical education teacher.

It was sunny day. They all enjoyed, rejuvenated and rejoiced mind and body. Ramesh was thrilled as he saw an exciting natural spectrum appearing in the sky when he looked at the sky through the water fountain, with the sun behind him. He came back with a number of questions in his mind.

Read the given passage and answer the following questions:

- (a) Name the natural spectrum appearing in the sky. How does it form?
  - (b) Draw a ray diagram showing formation of natural spectrum appearing in the sky.
  - (c) What value of shown by Ramesh
18. An object 3 cm high is placed perpendicular to the principal axis of a concave lens of focal length 15 cm. The image is formed at a distance of 10 cm from the lens. Calculate:
- (a) Distance at which the object is placed.
  - (b) Size and nature of the image formed.
19. Discuss in brief the various modes of reproduction used by single organisms.

**Or**

Explain with example how characteristics of a population changes over the years for the following situations:

- (a) To gain survival advantage.
  - (b) Due to accidental survival.
  - (c) Temporary change of characteristics.
20. A convex lens has a focal length of 10 cm. At what distance from the lens should the object be placed so that it forms a real and inverted image 20 cm. away from the lens? What would be the size of the image formed if the object is 2 cm high? With the help of a ray diagram show the formation of the image by the lens in this case?

**Or**

- (i) Define: (a) Centre of curvature (b) Pole of a concave mirror
  - (ii) State the mirror formula and its magnification.
  - (iii) Using the same find the distance at which an object to be placed for getting a real, inverted enlarged image at 45 cm using a concave mirror of focal length 20 cm.
21. Draw a labelled diagram which shows the refraction of light through a triangular glass prism. Mark the:
- (i) Angle of deviation
  - (ii) Angle of emergence
  - (iii) Angle of prism

**Or**

Give some points of similarities and dissimilarities between a camera and a human eye.

22. Give five differences between diamond and graphite.

Or

(a) A compound X is formed by the reaction of carboxylic acid having the molecular formula  $C_2H_4O_2$  and alcohol (Y) in the presence of conc.  $H_2SO_4$ . The same carboxylic acid is obtained by the oxidation of alcohol (Y). Name the compounds X and Y. Give the chemical equation for the reaction.

23. (a) Which hydrocarbons burn with  
 (i) non-sooty blue flame      (ii) sooty yellow flame  
 (b) What happens when methane reacts with chlorine?  
 (c) What is rectified spirit?  
 (d) Why does soap not work in hard water?  
 (e) What is glacial acid?

Or

(a) What is hydrogenation? Give one reaction. What is its industrial application?  
 (b) What is esterification?

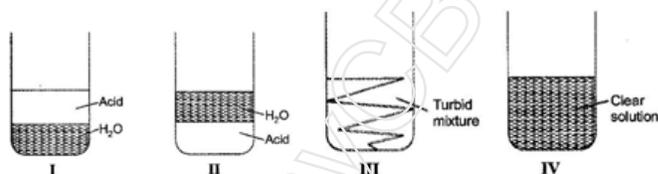
24. Describe the human female reproductive system with the help of a labelled diagram.

Or

Describe the process of fertilization in the human female.

### Section B

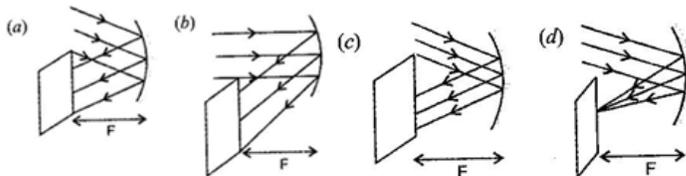
25. Five mL of acetic acid was added to 5 mL of water in a test tube.  
 (a) The resulting mixture is correctly represented in which diagram.  
 (b) Justify your answer.



26. Which process is shown in the figure of given slides A and B? Give reason also.

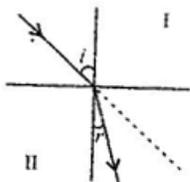


27. Which of the following pictures depict the correct image formation and why?



28. Glacial acetic acid is:  
 (a) 10% acetic acid      (b) 50% acetic acid      (c) 100% acetic acid      (d) 5% acetic acid

29. Acetic acid, when dissolve in water, it dissociates into ions reversely because it is:  
(a) It is a weak acid. (b) It is a strong acid. (c) It is a weak base. (d) It is a strong base
30. Binary fission occurs in:  
(a) Plasmodium (b) Hydra (c) Pomegranate (d) Paramecium
31. Which of the following organisms shows budding:  
(a) Spirogyra (b) Hydra (c) Amoeba (d) Paramecium
32. A male child will be born if:  
(a) father is healthy.  
(b) mother is well fed during pregnancy.  
(c) genetic composition of child has XY set of chromosomes.  
(d) genetic composition of child has XX set of chromosomes.
33. Chromosomes are made up of:  
(a) Protiens (b) DNA  
(c) Both of the above (d) RNA
34. While performing the experiment with glass slab, pins should:  
(a) be fixed vertically (b) stand in a line  
(c) not be hammered (d) All of these
35. As light gets in from air into glass, light will bend:  
(a) towards the normal (b) away from the normal  
(c) parallel to incident surface (d) retrace its path
36. The II medium shown with refracted ray for the given incident ray is:



- (a) denser  
(b) rarer  
(c) may be denser or rarer  
(d) none of these