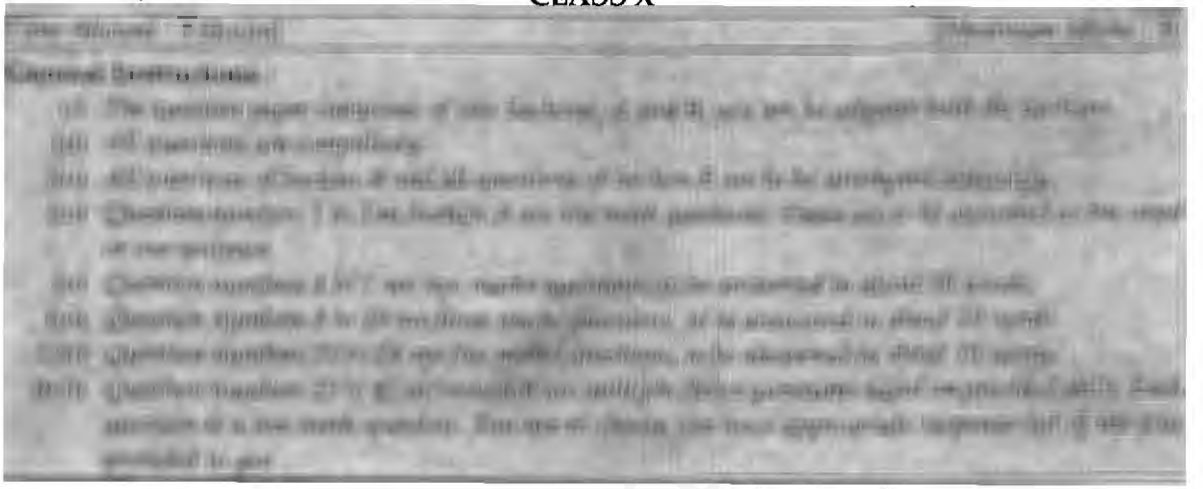
CCE MODEL TEST PAPER 1

SECOND TERM (SA–II)

SCIENCE (*Theory*)

(*For Practice*)

CLASS X



SECTION A

1. Name the part of the human eye that helps in changing the focal length of the eye lens. (1)

2. Write the next higher homologue of the following :

(*i*) C_3H_6

(*ii*) C_5H_8 (1)

3. Give one example of a plant in which vegetative propagation takes place through leaf. (1)

4. What is the cause of dispersion of white light passing through a prism ? Which colour of light deviates the (*i*) most; (*ii*) least ? (2)

5. Why does the clear sky appear blue ? How would the sky appear in the absence of earth's atmosphere ? (2)

6. What is ozone and how does it affect an ecosystem ? (2)

7. List any two differences between pollination and fertilisation. (2)

8. A real image, $\frac{1}{5}$th the size of object is formed at a distance of 18 cm from a mirror. What is the nature of mirror ? Calculate its focal length. (3)

9. A ray of light is incident obliquely on a glass slab. Draw a ray diagram showing the path of the light ray. Clearly mark angle of incidence, angle of refraction, angle of emergence and lateral displacement of the ray. Give a formula to find refractive index of glass slab in terms of angle of incidence and angle of refraction. (3)

10. A person cannot see objects farther than 1.2 m from the eye clearly. Name the defect of vision he is suffering from and the lens that should be used for correction of this defect. Illustrate with the help of a diagram, how this lens will correct the defective vision. (3)

11. What is a rainbow ? With the help of a diagram describe the formation of rainbow in the sky. (3)

12. Give reasons for the following :

(*a*) Unsaturated hydrocarbons show addition reactions but not saturated hydrocarbons.

(*b*) Carbon only forms covalent compounds. (3)

13. State Modern Periodic Law. Mention the position of (*i*) hydrogen and (*ii*) isotopes of the same element in the modern periodic table. (3)

14. Why are bacteria and fungi called decomposers ? List any two advantages of decomposers. (3)

15. Suggest three ways to maintain a balance between environment and development. (3)

16. What are the different ways in which individuals with a particular trait may increase in a population ? (3)

17. Why are the small numbers of surviving tigers a cause of worry from the point of view of genetics ? (3)

18. (*a*) Explain the terms :

(*i*) implantation (*ii*) placenta

(*b*) What is the average duration of human pregnancy ? (3)

19. Define genetics. What is the contribution of Mendel in this branch of biology ? (3)

20. Sita and Gita are good friends and study in class VIII in same school. Gita was poor but Sita never minded it and always supported Gita. For last few days Gita was quite perplexed. When Sita insisted her to tell her problem then Gita told her that my mother used to sew clothes to earn some money for the family. But for last one month she has problem in her eyes and as a result cannot sew clothes properly. Sita's uncle was a eye specialist. She took Gita's mother to her uncle. Her uncle tested eyes of Gita's mother and said that it is a simple case of presbyopia due to advanced age. He prescribed lenses of power + 1.5 D. Gita's mother started using spectacles and she started working as before because her eye problem was solved.

(*i*) **What is presbyopia ? What is its cause ?**

(*ii*) **What is power of a lens ? What do positive and negative sign of power signify ?**

(*iii*) **What qualities were exhibited by Sita ?** **(5)**

21. Complete the following reactions :

(*i*) $CH_3CH_2OH \xrightarrow[\text{heat}]{\text{conc. } H_2SO_4}$ (*ii*) $CH_3COOH + NaHCO_3 \longrightarrow$

(*iii*) $CH_4 + Cl_2 \xrightarrow{\text{Sunlight}}$ (*iv*) $CH_2 = CH_2 + H_2 \xrightarrow{Ni}$

(*v*) $C_2H_5OH + O_2 \xrightarrow{\text{Alk. } KMnO_4}$ (5)

Or

(*a*) List two reasons for carbon forming a large number of compounds.

(*b*) An organic acid X is a liquid which often freezes during winter time in cold countries. It has molecular formula $C_2H_4O_2$. On warming with ethanol in the presence of a few drops of conc. H_2SO_4 a compound Y with sweet smell is formed.

(*i*) Identify X and Y.

(*ii*) Write chemical equation for the reaction involved.

22. (*a*) Why was it necessary to change the basis of classification from atomic mass to atomic number ?

(*b*) What is a metalloid ?

(*c*) Give the names of the metalloids in the Periodic Table alongwith their atomic number. (5)

Or

Table given below shows a part of the Periodic Table :

H							He
Li	Be	B	C	N	O	F	Ne
Na	Mg	Al	Si	P	S	Cl	Ar

Using this Table, explain why

(*a*) Li and Na are considered as active metals.

(*b*) Atomic size of Mg is less than that of Na.

(*c*) Fluorine is more reactive than chlorine.

23. (*a*) Explain the role of placenta in the development of human embryo.

(*b*) Give example of two bacterial and two viral sexually transmitted diseases. Name the most effective contraceptive which prevents spread of such diseases. (5)

Or

(*a*) Draw a longitudinal section of a flower and label the following parts :

(*i*) Part that produces pollen grain.

(*ii*) Part that transfers male gametes to the female gametes.

(*iii*) Part that is sticky to trap the pollen grain.

(*iv*) Part that develops into a fruit.

(*b*) Differentiate between pollination and fertilisation.

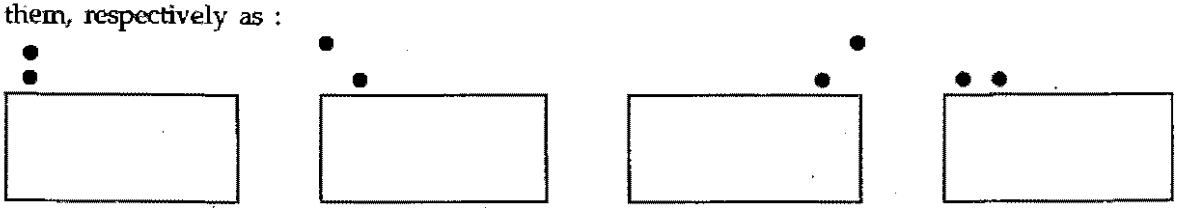
24. Give the salient features of Darwin's theory of natural selection. (5)

Or

Name the organism Mendel used for his experiment. Explain about F1 and F2 progeny obtained by Mendel when he bred the tall and the short varieties of the organism he experimented with.

SECTION B

25. Four students *A, B, C, D* perform experiment on tracing the path of light ray through a glass slab. The position of the pins used to describe incident ray is shown on paper by four of them, respectively as :



The correct result will be obtained by : (1)

(*a*) *A* and *D* both (*b*) *B* and *D* both

(c) *B* only (d) *B* and *C* both

26. Teacher asked three students to write one precaution by each of them regarding the experiment on tracing the path of light ray through glass slab. First, second and third student wrote down following precautions, respectively

(1) While tracing emergent ray, we should see heads of pins.

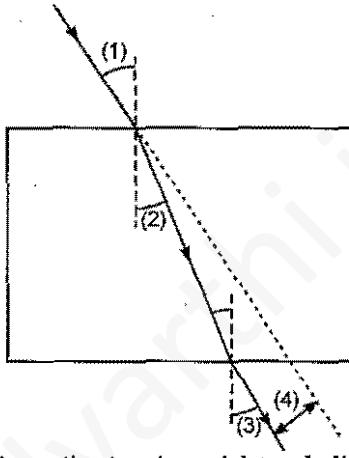
(2) One eye should be kept closed, while tracing emergent ray.

(3) Glass slab should have parallel edges.

The correct statements are of (1)

(a) 1 and 2 (b) 2 and 3 (c) 1 and 3 (d) All three

27. A student is asked to label his diagram made as observation on tracing the path of light ray through glass slab as follows :



The correct sequence of labelling $\angle i$, $\angle e$, $\angle r$ and lateral displacement respectively is (1)

(a) (1), (2), (3) and (4) (b) (3), (4), (1) and (2)

(c) (1), (3), (2) and (4) (d) (3), (2), (4) and (1)

28. A student obtains an image of window by using a convex lens on a screen. He adjusts the position of screen to get sharpest and brightest image possible. To get focal length of lens he should measure the : (1)

(a) distance between window and screen.

(b) distance between convex lens and window.

(c) distance between screen and convex lens.

(d) distance between window and convex lens as well as distance between window and screen.

29. A student determines the focal length of a device X by focusing the image of a distant object on a screen placed on the same side as the object. The device X is (1)

(a) Concave lens (b) Convex lens (c) Concave mirror (d) Convex mirror

30. Rima is drawing image formed by a convex lens when a linear object is placed at $2F_1$. Which two of the following three rays should she select so as to obtain a correct image :

(i) A ray travelling parallel to principal axis of lens, after refraction passes through focus point F_2.

(ii) A ray passing through optical centre will pass straight without any deviation.

(*iii*) A ray passing through F_2 will continue to travel straight undeviated. (1)

(*a*) (*i*) and (*iii*) (*b*) (*ii*) and (*iii*)

(*c*) (*i*) and (*ii*) (*d*) Any two rays

31. When a light ray is refracted through a prism, the emergent ray (1)

(*a*) bends towards the incident ray.

(*b*) travels straight along the direction of incident ray.

(*c*) is a virtual line.

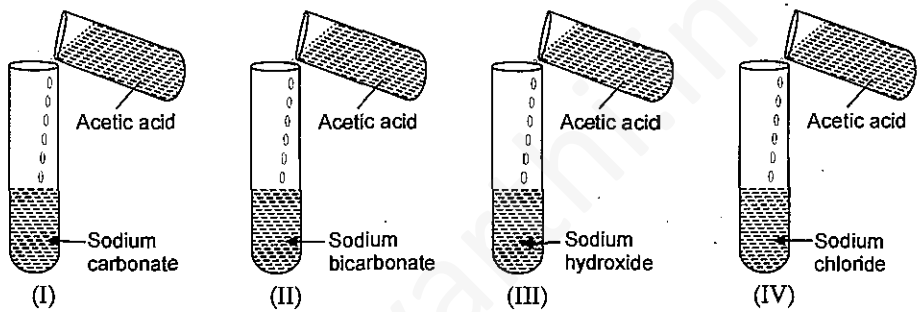
(*d*) always bends towards the base of prism.

32. When ethanoic acid is added to a solution of substance X, a colourless and odourless gas Y is liberated. The gas Y turns lime water milky. The substance X is (1)

(*a*) Sodium carbonate (*b*) Sodium hydroxide

(*c*) Sodium acetate (*d*) Lime water

33. A student added acetic acid to test tubes I, II, III and IV and then introduced a burning candle near the mouth of each test tube.



The candle would be extinguished near the mouth of test tubes (1)

(*a*) I and II (*b*) II and III

(*c*) III and IV (*d*) I and IV

34. Which of the following do you think will give the maximum foam ? (1)

(*a*) Aqua-guarded water (*b*) Distilled water

(*c*) Water from the river (*d*) Sea water

35. What type of reaction takes place when soap reacts with hard water ? (1)

(*a*) Addition reaction (*b*) Decomposition reaction

(*c*) Displacement reaction (*d*) Double displacement reaction

36. Sodium hydroxide solution was added to a liquid X. The mixture was stirred for sometime. A lot of heat was produced. Among the products formed were glycerol and a solid Y. The substances X and Y respectively are (1)

(*a*) soap, oil (*b*) oil, soap

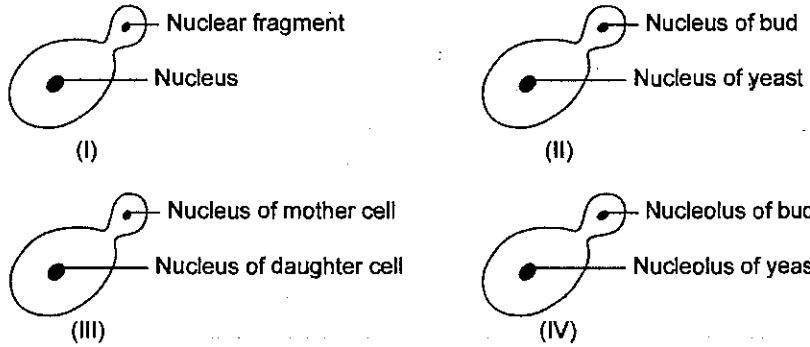
(*c*) sugar, soap (*d*) vinegar, soap

37. In the preparation of soap, filler performs the function of (1)

(*a*) making soap soft to skin. (*b*) making soap soft to clothes.

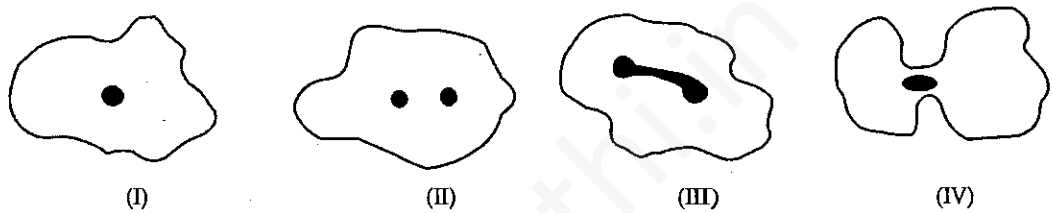
(*c*) making soap hard and easy to cut. (*d*) increasing the efficiency of soap.

38. Out of the given diagrams, the correctly labelled diagram showing budding in yeast is : (1)



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

39. The correct diagram showing an *amoeba* undergoing binary fission is : (1)



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

40. Following diagrams depict various stages of binary fission in Amoeba.

The correct sequence is (1)

(*a*) 1, 2, 3, 4 (*b*) 4, 3, 1, 2 (*c*) 4, 3, 2, 1 (*d*) 3, 2, 1, 4

41. Which group out of the following represents homologous organs ? (1)

(*a*) Potato, ginger, sweet potato (*b*) Turnip, raddish, carrot

(*c*) Carrot, sweet potato, potato (*d*) Ginger, potato, carrot

42. Function of cotyledons is to (1)

(*a*) Provide food to embryo (*b*) Helps in soaking water

(*c*) Provide protection to embryo (*d*) Both (*a*) and (*c*)