PRE BOARD EXAMINATION-II

(Summative assessment – II, 2013)
SCIENCE
Class – X

Time allowed : 3 hours   **Maximum Marks : 90**

Date:15-02-2013

General Instructions :

(i) The question paper comprises of **two Sections, A** and **B**. You are to attempt both the sections.

(ii) **All** questions are **compulsory**.

(iii) There is no overall choice. However, internal choice has been provided in all the five questions of five marks category. Only one option in such questions is to be attempted.

(iv) **All** questions of **Section-A** and **all** questions of **Section-B** are to be attempted separately.

(v) Question numbers **1** to **4** in **Section-A** are **one mark** questions. These are to be answered In **one word** or in **one sentence**.

(vi) Question numbers **5** to **13** in **Section-A** are **two marks** questions. These are to be answered in about **30 words** each.

(vii) Question numbers **14** to **22** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each.

(viii) Question numbers **23** to **25** in **Section-A** are **five marks** questions. These are to be Answered in about **70 words** each.

(ix) Question numbers **26** to **41** in **Section-B** are multiple choice questions based on practical skills. Each question is a **one mark** question. You are to select one most appropriate response out of the four provided to you.

(x) value based questions 10 Marks

SECTION-A

1. Mention the percentage of carbon in earth's crust.

2. State the function of pupil of an eye.

3. Name the two abiotic components of ecosystem.

4. Mention the role of microorganisms like bacteria and fungi in the ecosystem

5. (a) Atomic number of Mg and Al are 12 and 13 respectively. Write their electronic configuration.

  (b) Mention the period of the Modern Periodic Table to which the above two elements belong. Give reason for your answer.

6. (a)State the Modern periodic law.

  (b)What is the total number of periods and groups in Modern Periodic Table.

7. Mention any two advantages of using vegetative propagation for growing some types of plants ?

8. Differentiate between binary and multiple fission for reproduction. Give one example of Each

9. Differentiate between a real and virtual image. Write any two points.

10. How is a normal eye able to see distinctly distant as well as nearer objects ? What is the distance of distinct vision ?

11. Why do different colour get separated when white light Passes through prism ? How can we recombine the components of white light after a prism has separated them. Explain with the help of figure.

12. What are fossil fuels ? Why are they so called ?

13. Mention the steps taken by West Bengal Government to protect badly degraded sal forests.

14. (a) Identify from the following the hydrocarbons that undergo addition reactions :

C3H4, C2H6, CH4, C2H4 Justify your answer.

(b) Write the name of the homologous series to which they belong to.

15. From the part of a periodic table, answer the following questions

1 Hydrogen	2	13	14 Carbon	15	16 Oxygen	17 Fluorine
X			P			Q
Y						R
Z						T

(a) Atomic number of oxygen is 8. What would be the atomic number of, Fluorine ?

(b) Out of 'X' and 'Q' which element has larger atomic size. Give reason for your answer   Fluorine.

(c) Out of 'Y' and 'Z' which element has smaller atomic size. Give reason for your answer.

16. Distinguish between the functions of ovary and testis.

17. In human beings, the statistical probability of getting either a male or a female child is 50 : 50." Justify this statement with the help of a diagram.

18. Explain the homologous and analogous organs. Identify analogous and homologous organs amongst the following – wings of an insect, wings of a bat, fore limbs of lizard, fore limbs of bird.
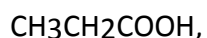
19. Define evolution. Why are traits acquired during life time of an individual not inherited ?

20. A student focused the image of a candle flame on a white screen by placing the flame at various distances from a convex lens. He noted his observations :

Distance of flame from the lens (cm)		distance of the screen from the lens(cm)
(i)	60	20
(ii)	40	24
(iii)	30	30
(iv)	24	40
(v)	15	70

(a) From the above table find the focal length of lens without using lens formula.

(b) Which set of observations is incorrect and why ?

(c) In which case the size of object and image will be same ? Give reason for your answer.

21. A glass slab made of a material of refractive index n_1 is kept in a medium of refractive index n_2. A light ray is incident on the slab. Complete the path of rays of light emerging from the glass slab, if :

(a) $n_1 > n_2$ (b) $n_1 = n_2$ (c) $n_1 < n_2$

22. Suggest reason for each of the following :

(a) The sky near the horizon appears to have a reddish colour at the time of sunset and sunshine.

(b) The sky appears dark instead of blue to an astronaut in space.

(c) Stars appear to twinkle.

23. (a) Write the name of the following compound :

CH_3CH_2COOH, C_6H_6

(b) What is a homologous series ? Write the formula of functional group of ketone and aldehyde

(c) What will happen if ethanol reacts with ethanoic acid in the presence of an acid ? Name the reaction. Write the chemical equation for this reaction. (2)

OR

(i) How will you bring about following reactions ? Write the concerned chemical equation :

(a) Ethanol to Ethene   (b) Ethanol to Ethanoic acid.

(ii) Give one example with chemical equation for following reactions :

(a) Substitution reaction.

(b) Saponification reaction.

(c) Combustion reaction.

24. (a) Draw a labelled diagram of female reproductive system. (2 marks)

(b) Explain what happens when the egg is not fertilized ?

OR

(a) Draw the labelled diagram of male reproductive system.

(b) List any two reasons why the Government has banned prenatal sex determination by law.

25. (a) State Snell's law of refraction. Express refractive index of a medium as a mathematical formula.

(b) An object 4 cm. in size, is placed at 25 cm. in front of concave mirror of focal length 15 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image ? Find the nature and the size of the image.
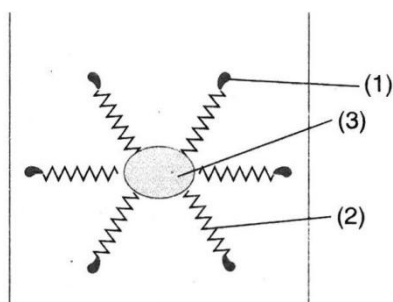
OR

(a) What are laws of refraction of light ?

(b) A convex mirror used for rear view on an automobile has a radius of curvature 3.00 m. If a bus is located at 5 m from the mirror, find position, nature and relative size of the image.
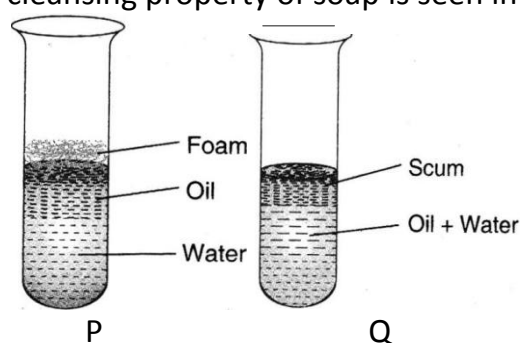
SECTION - B

26. The micelles of soap is formed on adding soap to water. What is the correct labelling of these Micelles'

(a) (1) hydrophobic end (2) hydrophilic end (3) soap

(b) (1) oil   (2) hydrophilic end   (3) soap

(c) (1) hydrophilic end (2) hydrophobic end   (3) oil

(d) (1) hydrophobic end (2) hydrophilic end (3) oil

27. Two test tubes P and Q ds shown above were used to study the cleansing property of soap. In test tube P foam is formed and in test tube Q scum is formed . The best cleansing property of soap is seen in

Foam	Scum
Oil	Oil + Water
Water	
P	Q

    (a) p   b) both P and Q   (b) Q   (d) neither P nor Q

28. The odour of acetic acid resembles with that of

    (a)rose.   (b)burning plastic.   (c)vinegar.   (d)kerosene.

29. Ethanoic acid was added to washing soda solution and the gas evolved was tested with a burning splinter. Which of the following four observations is correct.

    (a) The gas burns with a pop sound and the flame gets extinguished.

    (b) The gas does not burn but the splinter burns with a pop sound.

    (c) The flame extinguishes and the gas does not burn.

    (d) The gas burns with a blue flame and the splinter burns brightly

30. Soaps are precipitated by salting it out with saturated

    (a) sodium carbonate   (b) sodium chloride

    (c) sodium hydroxide   (d) sodium bicarbonate

31. A teacher set up the stand carrying a convex lens of focal length 15 cm at 20.5 cm on the optical bench. She asked four students A,B,C and D to suggest the position of the screen on the optical bench so that a distinct image of a distant tree is obtained immediately on it. The positions of screen suggested by each of them were as-

A — at   35.5 cm
B — at   5.5 cm
C — at   50.5 cm
D — at   7.5 cm.

Correct position of the screen was suggested by

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

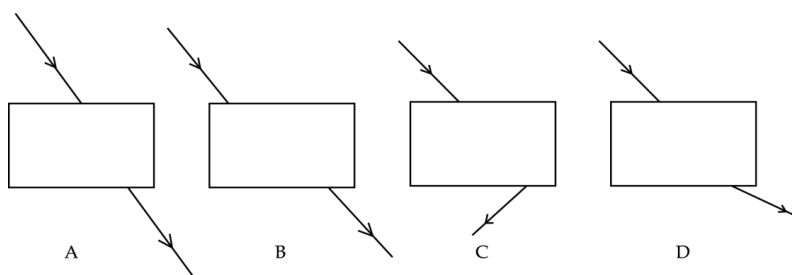**32.** For determining focal length of a concave mirror, a teacher asks her students to Identify concave mirror from a few mirrors lying on the table. The reason given by A,B,C and D for   picking up the right mirror is

  A ▁   the mirror is depressed at the center and self image formed is enlarged and erect.

  B —   the mirror is raised at the center and self image formed is smaller and erect

  C —   the mirror is plane all over and self image is of same size

  D ▁   the mirror is depressed at the center and self image formed is enlarged and inverted.

33. Students performed experiment to determine focal length of a convex lens. by obtaining image of a distant tree on the screen. Their teacher asks four students A,B,C,D to describe nature and size of image. Description given by them is

  A —   Image is virtual, smaller and erect

  B —   Image is real, smaller and erect

  C —   Image is virtual, enlarged and inverted

  D —   Image is real, smaller and inverted.

34. Four students have shown the path of a ray of light through rectangular glass slab as —

Correct path has been drawn by —

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

35. Ritesh performed the experiment to trace the path of a ray of light through a glass slab and measured angles of incidence (i) refraction (r) and emergence (e) In different sets of observations, she noticed following relationship between i, r, and e

(i)   i $=$ r   r $<$ e   (ii)   i $<$ r   r $=$ e

(iii)   i $>$ r   r $>$ e   (iv)   i $=$ e   i $>$ r.

Correct relationship is –

  (a)(i)   (b)(ii)   (c)(iii)   (d)(iv)

36. A student is given a permanent slide showing binary fission in Amoeba. The following are the steps in focusing the object under microscope.

(i) Place the slide on the stage; look through the eye-piece and adjust the mirror and diaphragm to get even illumination

(ii) Look through the eyepiece and raise the objective using coarse adjustment until the object is focused.

(iii) Make the focus sharp with the help of fine adjustment.

(iv) Look through the eyepiece and move the slide until the object is visible.

The appropriate sequence of steps is :

(a) (i), (ii), (iii), (iv)   (b) (ii), (iii), (i), (iv)

(b) (c) (iv), (ii), (i), (iii)   (d)(i), (iv), (ii), (iii)

37. Binary fission begins in Amoeba with

(a) Constriction of the body   (b) Elongation of the body

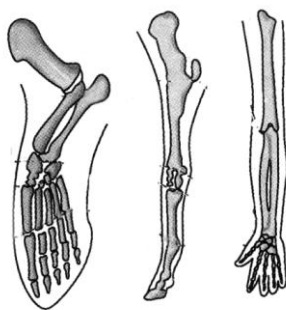(c) Constriction of the nucleus   (d) Elongation of the nucleus.

38. During budding in yeast, the parent cell divides by the process :

(a) Cytoplasm and nucleus divides at same time.   (b) The nucleus first divides then cytoplasm.

(c) The cytoplasm first divide then nucleus. (d) The cytoplasm and nucleus do not divide.

39. In budding

(a) outgrowth develops earlier than nuclear division

(b) Nucleus divides earlier than the formation of out growth

(c) Division of nucleus and development of out growth occur simultaneously

(d) There is no fixed sequence of division of nucleus and development of out growth.
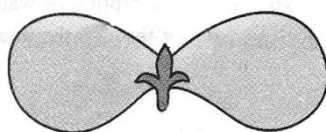
40.

The above figure

a) represents analogous organs   b) represents homologous organs

c) these organs have different origin and different function   d) none of these

41.

The above figure represents

a) monocot seed   b) ovary   c) dicot seed   d) none of the above

Value Based Questions   **10M**

42.Raman lives in a coastal village. He is the son of a fisherman. Wheneverany unwanted animal comes in the net, instead of killing it, he puts it back in the sea.

Answer the following questions based on above information:

i) What would have happened, had he killed those animals?   **1M**

ii) Give one reason to justify that Raman's action is environment friendly**.**   **1 M**

iii) How can you contribute in the preservation of flora and fauna around you? Mention any two steps.   **1M**

43. The number of dengue cases had increased in Pooja's village in last one year.   She read in her textbook that diseases like dengue spread through mosquitoes which breed in stagnant water.   She immediately suggested her friends and decided to kill the mosquitoes in water bodies in the locality. They also took help of nearest municipal office**.**

Answer the following questions based on above information:

i) Which preventive measures do you suggest for the prevention of such diseases caused by mosquitoes? Mention any two measures.   **3M**

ii) Which values are displayed by Pooja in taking initiative?   **1M**

iii) Suggest one school activity to promote such values in school students.   **1M**

44.How can you make your kitchen eco-friendly?   **2M**

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