# SUMMATIVE ASSESSMENT – II, 2014 [JS-20142]

## SCIENCE /Class – X

TIME -3Hrs Max.Marks90

**GENERAL INSTRUCTIONS:**

1. Question paper comprises of two sections, A and B.You are to attempt both the sections
2. All questions are compulsory
3. All questions of section A and all questions of section B are to be attempted separately
4. Question numbers 1 to 3 in section A are one mark questions,to be answered in one word or one sentence
5. Question numbers 4to7 are two mark questions, to be answered in about 30 words each
6. Question numbers 8 to19 are 3 marks questions, to be answered in about 50 words
7. Question numbers 20 to24 are 5 mark questions, to be answered in about 70 words
8. Question numbers 25 to 42 in section B are MCQ based on practical skills. Each question is a one mark question

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**SECTION-A**

1. Name the element which has twice as many electrons in its second shell as in its first shell. Write its electronic configuration also. 1
2. Give common name of the plant on which Mendel performed his experiments. 1
3. In a food chain comprising frogs, insects, birds and grass, which one of the organisms is likely to have maximum concentration of harmful non biodegradable chemicals in its body? 1
4. Choose from the following elements whose atomic numbers are given in parentheses 2
   H(1), He(2), C(6), F(9), Na(11), Cl(17), Mg(12)
   a) Smallest element of 3rd period.
   b) A noble gas.
   c) A metal of 3rd period having valency 1.
   d) Most non metallic element of 2nd period.
5. What is meant by least distance of distinct vision? How does this vary between the very young and old people? 2
6. a) Distinguish between biodegradable and non biodegradable pollutants. 2
   b) Choose the bio degradable pollutants from the following.
   Sewage, DDT, Radioactive waste, Agriculture waste
7. Construction of dams ensures electricity generation for a large number of villages. State two reasons for opposition to the construction of dams in spite of this advantage. 2
8. a) State two disadvantages of converting forests into mono culture. 3
   b) Give any two advantages of water stored underground.
   c) State any two measures to conserve wildlife.
9. A student has difficulty in reading the blackboard while sitting in last row. What could be defect of vision? Draw ray diagrams to illustrate this defect and its correction. 3

10. a) Define power of a lens. What is its unit? 3
    b) One student uses a lens of focal length 50cm and another of -25cm. What is the nature of lens and its power used by each of them?

11. a) Define absolute refractive index of a medium. 3
    b) Light travels through glycerine with a speed of $2.05 \times 10^8$ m/s. Find the R.I of glycerine.(speed of light in vacuum = $3 \times 10^8$ m/s)

12. How is the sex of a new born individual determined genetically in human? 3
13. Distinguish between acquired and inherited traits by giving one example each. 3
14. What is genetics? State any two factors that could lead to the rise of new species. 3
15. a) List two advantages of vegetative propagation in plants. 3
    b) In which of the following plants is vegetative propagation practiced?
    Banana, Rice, Tomato, Rose
16. List any 2 contraceptive methods practiced only by women. Mention how these methods work. 3
17. a) How many eggs are produced every month by either of the ovaries in a human female? 3
    b) Where does fertisation takes place in the female reproductive system?
    c) What happens incase the eggs released by the ovary is not fertilized?
18. a) Which of the following belong to the same homologous series? 3
    $C_2H_6$, $C_2H_6O_2$, $C_2H_6O$, $C_4H_{10}$

    b) List two differences between saturated and unsaturated hydrocarbons.

    c) What are isomers?

19. An organic compound A of molecular formula $C_2H_4$ on reduction gives another compound B 3 of molecular formula $C_2H_6$. B on reaction with chlorine in presence of sunlight gives C of molecular formula $C_2H_5Cl$.
    a) Name the compound A,B and C
    b) Write the equation for the conversion of A to B. And name the type of reaction.

c)

20 Give reasons for the following. 5
    a) Formation of rainbow. b) Sky looks blue. c) Danger signals are red.
    d) Rising sun looks reddish. e) Planets do not twinkle.

21. a) Complete the following equations. 5

    $CH_3COOH + C_2H_5OH$ $\xrightarrow{\text{acid}}$

    $2C_2H_5OH + 2Na$ ----------→

    b) State two harmful effects of drinking alcohol.

    c) What measures would you take to discourage people in your society who consume alcohol?

22. a) Draw a labeled diagram to show fertilization in flowering plants. 5
    b) Differentiate between self pollination and cross pollination.
23. a) Draw ray diagram to show the formation of image of an object placed between infinity and optical centre of a concave lens. 5
    b) An object 4cm high is placed at a distance of 20cm in front of a concave mirror of focal length 12cm. Find the position and size of image formed.
24. The atomic number of an element is 16. Predict its 5
    a) Valency
    b) Group number
    c) Whether it is a metal or non metal
    d) Nature of the oxide formed
    e) Name of the element

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**SECTION B**

25. On adding $NaHCO_3$ to acetic acid, one immediately 1
    a) observes strong effervescence
    b) hears a hissing sound
    c) gets pungent smell
    d) observes the evolution of a coloured gas
26. In an experiment to trace the path of a ray of light passing through a rectangular glass slab four students tabulated *Li*, *Lr* and *Le* as given below. The student who has performed the experiment most carefully is 1

| Student | A | B | C | D |
|---|---|---|---|---|
| *Li* | $30^{U}$ | $30^{U}$ | $30^{U}$ | $30^{U}$ |
| *Lr* | $17^{U}$ | $24^{U}$ | $21^{U}$ | $19^{U}$ |
| *Le* | $28^{U}$ | $30^{U}$ | $32^{U}$ | $30^{U}$ |

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

27. A student is to find the focal length of (i) a concave mirror (ii) a convex lens by focusing the image of a distant object on a screen. He will observe that on the same side as that of the object in 1
    a) Both cases
    b) Case (i) but not in case (ii)
    c) Case (ii) but not in case (i)
    d) Neither case (ii) nor in case (i)

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28. On the basis of experiments performed by students with rectangular glass slabs the correct interpretation about the incident ray, refracted ray and emergent ray would be 1
    a) $Li > Le$
    b) $Le < Lr$
    c) Emergent ray is parallel to the refracted ray.
    d) Incident ray and emergent ray are parallel to each other.

29. While observing, a student will find that shape of amoeba is 1
    a) Round
    b) Oval
    c) Irregular
    d) Rod like

30. In budding 1
    a) Cell divides transversely.
    b) Cell divide longitudinally
    c) Nucleus divides followed by the development of protuberance.
    d) A small protuberance develops followed by nuclear division.

31. Which of the following gives vinegar like smell? 1
    a) Acetic acid
    b) Ethanol
    c) Sodium bicarbonate
    d) Sodium carbonate

32. Using a convex lens a student obtained a sharp image of the grill of a window in the laboratory on a screen. For getting better result she focused a distant tree instead of the grill. For getting a sharp image on the screen, in which direction should the lens be moved? 1
    a) Away from the screen.
    b) Towards the screen.
    c) Behind the screen.
    d) Very far away from the screen.

33. Which colour is deviated least when dispersion takes place through a prism? 1
    a) Violet
    b) Red
    c) Blue
    d) Yellow

34. Where an object should be placed in front of a convex lens to get a real image of the size of the object? 1
    a) At f
    b) At infinity
    c) At 2f
    d) Between O and f

35. A basket of vegetables contain carrot, potato, radish and tomato. Which of them represent the correct homologous structures? 1
    a) Carrot and potato
    b) Carrot and tomato
    c) Radish and carrot
    d) Radish and potato

36. Which of the following pairs of organs is analogous to each other? 1
    a) Leaf spines and leaf tendrils
    b) Flipper of a whale and leg of a horse

c) Forelimbs of frog and human hand
d) Wings of an insect and wings of a bat

37. Which of the following part is not found in a gram seed? 1
a) Cotyledons
b) Endosperm
c) Radicle
d) Plumule

38. In which of the following water sample soap will show maximum cleaning capacity? 1
a) Distilled water
b) Well water
c) Distilled water in which Calcium sulphate is dissolved
d) Distilled water in which Calcium bicarbonate is dissolved

39. While studying the binary fission in amoeba, an observer finds that at the end of this process 1
a) A parent cell and a daughter cell are produced.
b) Identity of the parent cell is lost.
c) Two daughter nuclei are formed.
d) Division of cytoplasm starts.

40. To determine the focal length of a convex lens by obtaining a sharp image of a distant object, the following steps is suggested which are not in proper sequence. 1
1. Hold the lens between the object and the screen.
2. Adjust the position of the lens to form a sharp image.
3. Select a suitable distant object.
4. Measure the distance between the lens and the screen.

The correct sequence of steps to determine the focal length of lens is.
a) 1, 2, 3, 4 b)3, 1, 4, 2 c)3, 4, 2, 1 d) 3, 1, 2, 4

41. In an experiment on tracing the path of a ray of light through a rectangular glass slab, four students A, B, C, D used the following values of angle of incidence and the distance between feet of the two pins (fixed on the incident ray). 1
A) ($30^o$, $45^o$, $60^o$) and 1cm
B) ($30^o$, $45^o$, $60^o$) and 6cm
C) ($20^o$, $50^o$, $80^o$) and 10cm
D) ($20^o$, $50^o$, $80^o$) and 15cm
Out of these the best choice is that of student,
a) A b) B c)C d)D

42. Which of the following sodium compound is heated with castor oil in the making of soap? 1
a) $Na_2CO_3$ b) $NaHCO_3$ c) NaOH d) $CH_3COONa$

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