Question Paper

Summative Assessment II 2014

Class X

Science

Time 3 hrs Max.Marks: 90

General Instructions

i) The question paper comprises of two Sections A and B. You are to attempt both sections.
ii) All questions are compulsory.
iii) There is no overall choice. However internal choice has been provided in Five marks category.
iv) All questions of Section –A and all questions of Section -B are to be attempted separately.
v) Question numbers 1 to 3 in Section-A are one mark questions. These are to be answered in one word or in one sentence.
vi) Question numbers 4 to 7 in Section –A are two marks questions. These are to be answered in about 30 words each.
vii) Question numbers 8 to 19 in Section-A are three marks questions. These are to be answered in about 50 words each.
viii) Question numbers 20 to 24 in Section-A are five marks questions. These are to be answered in 70 words each.
ix) Question numbers 25 to 42 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.

SECTION –A

1. In a food chain consisting of grass, frog, bird and insects, where will be the concentration of the harmful chemicals maximum?

2. A small candle 2.5 in size is placed at 27 cm in front of concave mirror of radius of curvature 36 cm. If the candle is moved close to the mirrors how will the screen has to be moved?

3. Write the formula of the sulphate of the element with atomic number 13.

4. What is the role of seminal vesicles and prostate gland in Human male reproductive system?

5. Fossil fuels are being increasingly used as source of energy. List reasons for replacing these by alternative sources of energy.

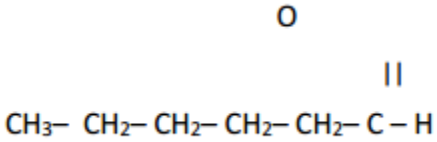
6. What are Isomers? State two properties of carbon which lead to the huge number of carbon compound.

7. Explain the three R's to save the environment with examples.

8. (a) Which two criteria did Mendeleev use to classify the elements in his periodic table? (b) State Mendeleev's periodic law. (c) Why is it not possible to give a fixed position to hydrogen in Mendeleev's periodic table?

9. (a) Give the structural difference between saturated and unsaturated hydrocarbons and also give one example of each.

(b) Write IUPAC name of the following compound



(c) What happens when ethanol is heated with concentrated H2SO4 at 443 K? Give the chemical reaction.

10. A) Properties of the element are given below: Where would you locate the following elements in the periodic table.

a. A soft metal stored under kerosene oil.

b. An element with variable valency(more than one) stored under water.

c. An element which is tetra valent in organic chemistry.

d. An element which is an inert gas with atomic number 2.

B) Why does atomic size decreases from left to right in a period and increases down the group

11. Write the full form of DNA and briefly explain DNA copying and its significance.

12. Why are bacteria and fungi called decomposers? List any two advantages of decomposers to the environment.

13. Draw a neat diagram of human female reproductive system and label the following parts:

A) The site of fertilization.

B) The part which is responsible for providing shelter to the growing embryo.

C) The part in which ovum formation takes place.

14. Define the following with one example for each: A) Genetic Drift. B) Natural selection. C) Reproductive isolation.

15. A) Give the laws of Refraction of Light.

B) Two mediums A and B with refractive index 1.33 and 1.50 are given. In which case

i. Bending of light is more.

ii. Speed of light is more. Justify your answer.

16. A) Define Magnification.

B) A convex lens of focal length 20 cm produces 3 times magnified real image of an object. Find the position of the object

17. A) Write the differences between real and virtual image

B) Why convex mirror is used as rear view mirror

18. A student is not able to see clearly the questions written on the black board placed at a distance of 5 m from him.

A) Name the defect of vision he is suffering from

B) What are the causes for this defect.

C) With the help of labelled ray diagrams show the defect and how this can be corrected?

19. 'Variation is beneficial to the species but not necessarily for the individual.' Give three reasons to support it.

20. A) Draw a diagram showing germination of pollen on stigma of a flower.

B) Label pollen grain, male germ cells, pollen tube and female germ cell in the above diagram.

C) Explain the process of fertilization in plants.

OR

A) What are the different methods of asexual mode of reproduction?

B) Explain two methods—Fragmentation and regeneration with proper diagram.

21. A) Explain Mendel's experiment with peas on inheritance of traits considering two visible Contrasting characters.

B) Define the term Evolution. "Evolution cannot be equated with progress". Justify this statement.

22. A) Complete the following reactions.

(i) $CH_3COOH + NaOH \longrightarrow$

(ii) $R - C{=}C - R + H_2 \xrightarrow{Ni}$

R R

sunlight

(iii) $CH_4 + Cl_2 \longrightarrow$

B) Draw the structures of (i) ethanoic acid (ii) butanone

C) What are esters? Give one use of ester.

OR

A) What are soaps? Why do soaps not produce lather in hard water?

B) Explain the mechanism of cleansing action of soap.

C) Will a micelle be formed in other solvents like ethanol also? Justify your answer.

23. Image characteristics of mirror and lens are given below.

A) Complete the table B) Draw the ray diagram for any one case

Sl No.	Device	Position of Object	Position of Image	Nature of Image
1	Concave mirror	Beyond C		
2	Convex mirror		Behind the mirror	
3	Concave lens	For any position		
4	Convex lens		Away from 2f	

24. Two friends were playing in the garden. Suddenly, Akshay noticed seven colours in the sky. He said to Sudeep“ wow, what is this?”. Sudeep explained

A) What is the name of this natural phenomena?

B) Which device can be used to obtain such a phenomena? Draw the diagram.

C) If Akshay was facing the colours then where was the sun?

D) What is the moral value which is shown by Sudeep.

SECTION- B

25. On adding concentrated NaOH solution to a test tube containing phenolphthalein, the colour change observed by a student would be :

A. Pink to colourless

B. Pink to blue

C. colourless to pink

D. Red to blue

26. Four students observed the colour and odour of acetic acid and its reaction with sodium hydrogen carbonate. They tabulated their observations as given below.

Student	Colour of acetic acid	Odour of acetic acid	Action with sodium hydrogencarbonate
A	Blue	Fruity	Gas evolves without bubbles
B	Colourless	Smell of vinegar	Effervescence
C	Light green	Odourless	Gas evolves without bubbles
D	Light brown	Rotten egg	Effervescence

The correct set of observation is that of student

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

27. Which of the following is an example of soft water?

(a) Rainwater. (b) River water. (c) Well water. (d) Hand pump water

28. Permanent hardness of water is due to the presence of :

a) hydrogencarbonates of calcium and magnesium

b) chloridesand sulphates of calcium and magnesium

c) hydrogencarbonates and sulphates of calcium and magnesium

d) chlorides and carbonates of calcium and magnesium

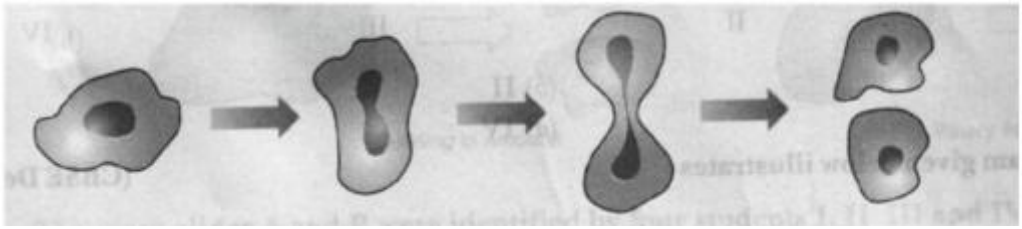
29. Which of the following is added to precipitate out all the soap from the aqueous solution?

(a) Calcium chloride b) Sodium hydroxide c) Sodium carbonate d) Sodium chloride

30. In a saponification reaction, which of the following is obtained as a byproduct?

a) Sodium hydroxide b) Sodium stearate c) Glycerol d) Sodium carbonate.

31. The process represented in the diagram below is the



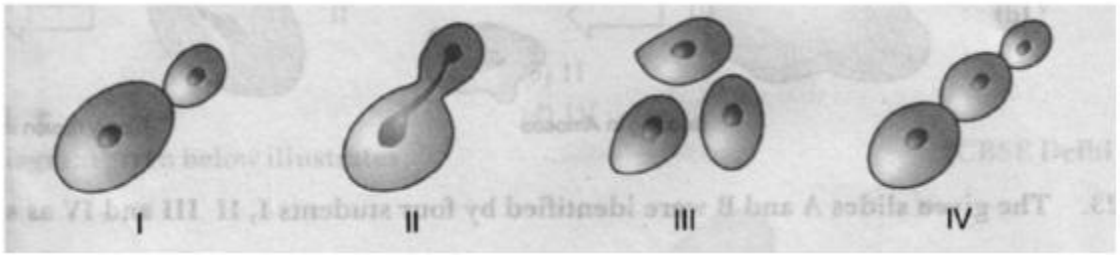
a) Formation of spores in Amoeba

b) Formation of bud taking place in Amoeba

c) Identical gametes being formed in Amoeba

d) Formation of daughter cells in Amoeba

32. Which one of the following sketches does not illustrate budding in yeast



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

33. Homology and analogy are helpful in studying and interpreting.

a)functional relationship b) commercial use of structures

c) structural relationship d) evolutionary relationship.

34. Students were given bean seeds and were asked to observe the embryo. They carried out the Following steps.

I. Separated the cotyledons from each other.

II. Soaked the seeds overnight.

III. Observed the embryo using magnifying glass.

IV. Peeled off the seed coat carefully.

What is the correct order of the steps?

a) II, I, IV, III
b) II, IV, I, III
c) I, II, IV, III
d) I, III, II, IV

35. Which part of the embryo develops into shoot? a) Plumule b) Radicle c) Cotyledon d) seed leaves

36. Analogy refers to similarity in

a) morphology b) Origin c) Function d) Size

37. Which of the following lenses would you prefer to use while reading small letters in a book

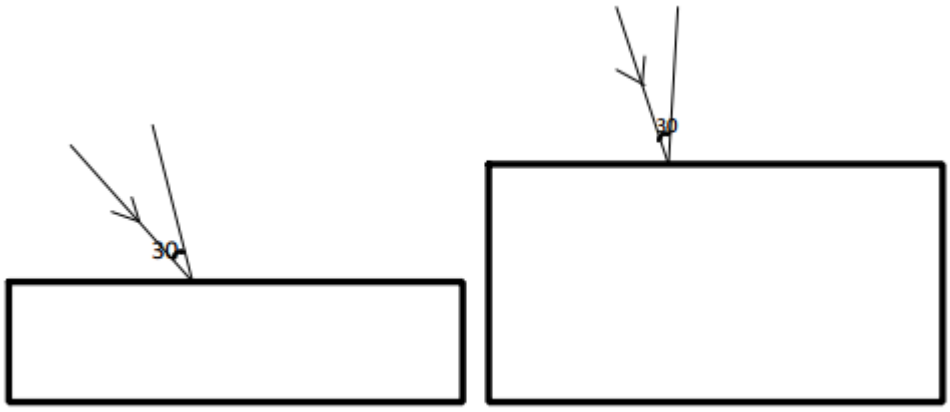
a) A convex lens of focal length 50 cm

b) A concave lens of focal length 50 cm

c) A convex lens of focal length 5 cm

d) A concave lens of focal length 5 cm

38. A student carries out the experiment of tracing the path of a ray of light through a rectangular glass slabs for same radius of angle of incidence. The student reported the following observation



I II

a) Angle of emergence is equal to angle of incidence

b) Lateral shift is grater for glass slab II

c) Lateral shift in both cases are equal

The correct observation is

a) I and II b) I c) I and III

39. A student obtained the sharp image of a candle flame using a concave mirror of radius of curvature 20 cm and tabulated as follows.

Sl No	Object Distance in cm	Image distance in cm
I	15	30
II	60	13
III	20	35

In the above observation

a. The image will be enlarged for the observation II

b. The observation III is wrong

c. Both I and II are correct

d. I is correct and II is wrong

40. Blue colour of the sky and twinkling of stars are due to

a) Reflection and Atmospheric refraction of sunlight.

b) Scattering and Atmospheric refraction of sunlight.

c) Dispersion and scattering of sunlight.

d) Atmospheric refraction and scattering of sunlight.

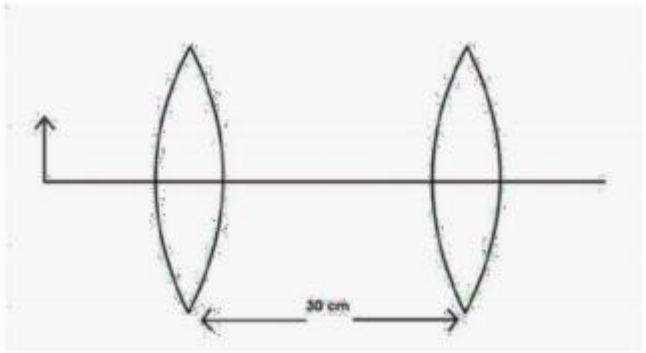
41. Convex lens of focal length 10 cm each is placed as in shown in the diagram. An object is placed at a distance of 20 cm. Image of the first lens will act as the object for the second lens. Then,

a) Then the final image will be formed at the principle focus of the second lens.

b) Then the final image will be formed at infinity.

c) Then the final image will be formed at 2f.

d) Then the final image will be formed between f and 2f.



42. A student obtained a sharp image of the grills of a window on his screen using a concave mirror. His teacher remarked that for getting better results, a well lit distant object (preferably the sun) should be focused on the screen. What should be done for this purpose?

A) Move the screen slightly away from the mirror

B) Move the mirror slightly towards the screen

C) Move the screen and the mirror away from the object

D) Move the screen and the mirror towards the object
