

## SUMMATIVE ASSESSMENT – II, 2014 [JS-20141]

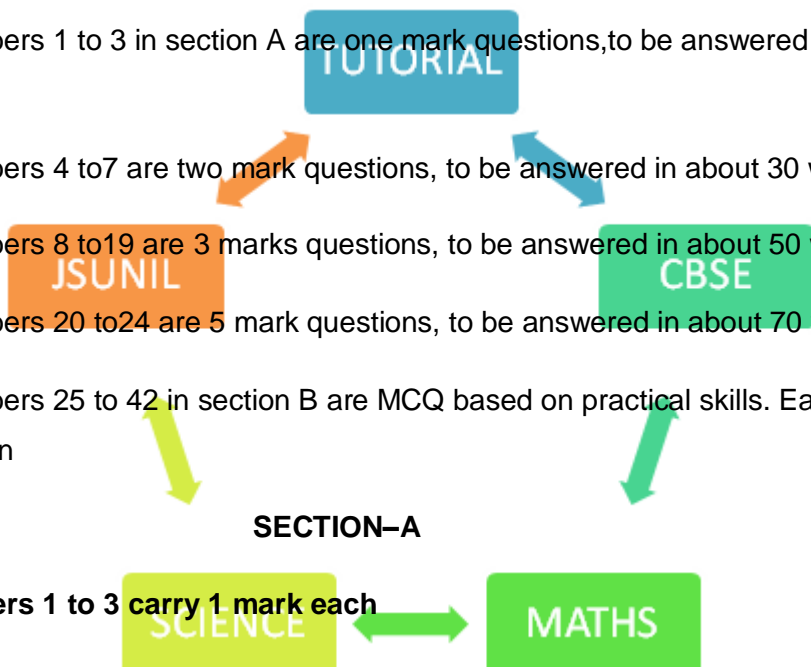
### SCIENCE /Class – X

Time allowed: 3 hours

Maximum Marks : 90

#### 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 4 to 7 are two mark questions, to be answered in about 30 words each
6. Question numbers 8 to 19 are 3 marks questions, to be answered in about 50 words
7. Question numbers 20 to 24 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



**Question Numbers 1 to 3 carry 1 mark each**

1. Which of the following belong to the same homologous series ?  $C_3H_8$  ,  $C_4H_8$  ,  $C_4H_6$  ,  $C_3H_6$
2. What is meant by dispersion of light?
3. Why is the Government stressing upon the use of jute / cloth carry bags ?

**Question Numbers 4 to 7 carry 2 marks each**

4. (a) An element has electronic configuration 2, 8, 6. Explain its position in the periodic table. (b) Size of sodium atom is bigger than that of hydrogen atom. Why ?
5. Local people around forests are referred to as “stakeholders” for conservation of forests. Give reasons.
6. Which parts/organs of the human reproductive systems perform the following functions :-  
(a) Site of fertilization (b) Production of ova

7. List two suitable differences between pollen grain and ovule.

**Question Numbers 8 to 19 carry 3 marks each**

8. A real image,  $\frac{1}{5}$ <sup>th</sup> 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.

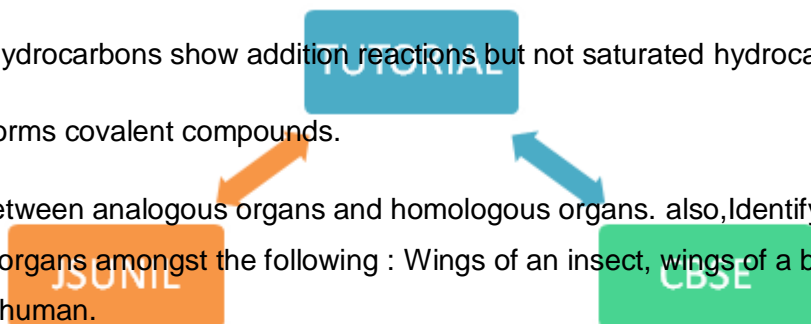
9. A ray of light is incident obliquely on a glass slab. Draw a ray - diagram showing the path of the light ray. Clearly mark angle of incidence, angle of refraction, angle of emergence and lateral displacement of the ray. Give a formula to find refractive index of glass slab in terms of angle of incidence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

10. Give reasons for the following:

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

(b) Carbon only forms covalent compounds.

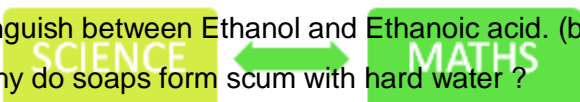
11. Distinguish between analogous organs and homologous organs. also, Identify the analogous and homologous organs amongst the following : Wings of an insect, wings of a bat, forelimbs of frog, forelimbs of human.



12. Explain with the help of flow chart - "What determines the sex of a child genetically"

13. What is the importance of D.N.A copying in reproduction? Why is variation beneficial to the species but not necessary for the individual? Explain.

14. (a) Write a test to distinguish between Ethanol and Ethanoic acid. (b) Draw electron dot structure of ethane. (c) Why do soaps form scum with hard water ?



15. From the given part of periodic table giving reasons, explain the following:

(a) Element A is a non metal. (b) Element D is more electronegative than E.

(c) Which type of ion, cation or anion will be formed by element C ? :

Group 15	Group 16
A	C
-	D
-	-
B	E

16. A 2 cm tall object is placed at a distance of 25 cm from a convex lens of focal length 10 cm. Find the nature, size and position of the image so formed.

17. Describe the formation of rainbow in the sky with the help of a labelled diagram.

18. 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. Identify X and Y. Write chemical equation for the reaction involved.

19. Look at the given picture and give a suitable caption to it. List its any two significance in relation to evolution of life.



**Question Numbers 20 to 24 carry 5 marks each**

**TUTORIAL**

20 (a) What is the role of seminal vesicles and the prostate gland? What are the three categories of contraception methods? Write briefly about each. 2+3

21. (i) (a) Complete the following reaction equation :



(b) State the name of this reaction.

(ii) What are covalent bonds? Give any two examples of covalently bonded molecules.

(iii) Draw the structure of Cyclohexane. Acid

22. (a) Explain what is Menstruation. List two methods of contraception and explain how they work.

(b) Draw a germinated seed and label the future root, future shoot and structure that stores food.

23. (i) Define real image of an object. 1

(ii) Name the mirror that  $\frac{1}{2} \times 4 = 2$

(a) can give real as well as virtual image of an object.

(b) will always give virtual image of same size of an object.

(c) will always give virtual and diminished image of an object.

(d) is used by a doctor in examining teeth.

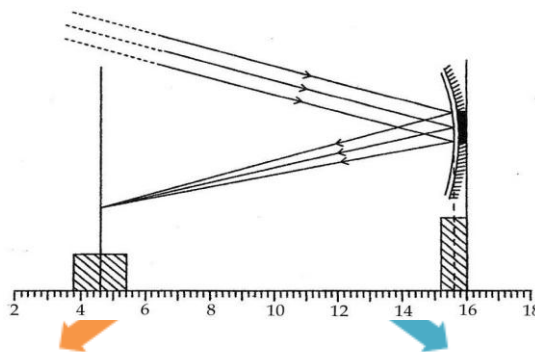
(iii) With the help of a ray diagram explain the use of concave mirror as solar concentrators. 2

24. (a) What is Esterification ? Give one example.
- (b) What happens when Ethanol is heated at 443 K with conc. H<sub>2</sub>SO<sub>4</sub> ?
- (c) Differentiate between addition reactions and substitution reactions shown by Hydrocarbons.

### SECTION – B

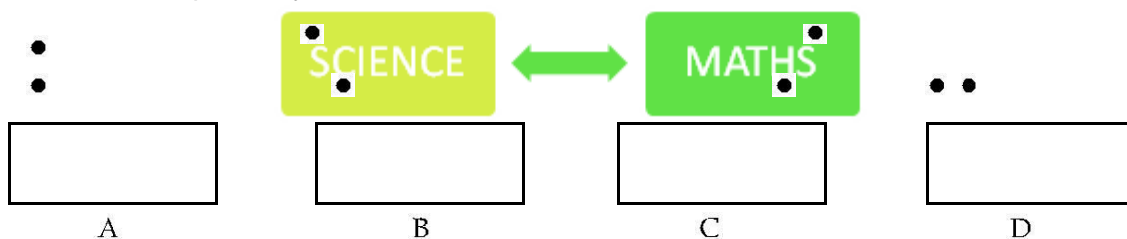
**Question Numbers 25 to 42 carry 1 mark each (MCQ based on practical skills)**

25. The focal length of a concave mirror shown below equals to : 1



- a) 10.3 cm. (b) 11 cm. (c) 11.7 cm. (d) 12.2 cm.

26. 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 :- 1



The correct result will be obtained by :

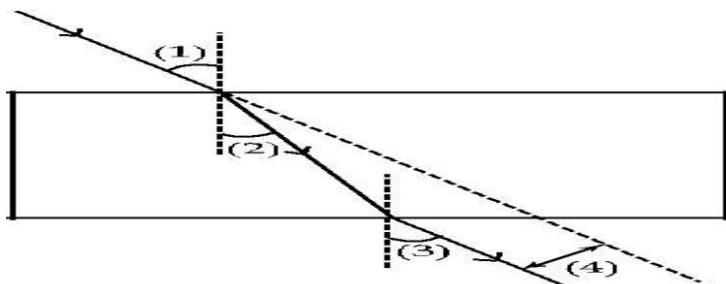
- (a) A and D both      (b) B and D both      (c) B only      (d) B and C both
27. Teacher asked three students to write one precaution by each of them regarding the experiment on tracing the path of light ray through glass slab. First, second and third student wrote down following precautions, respectively

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

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

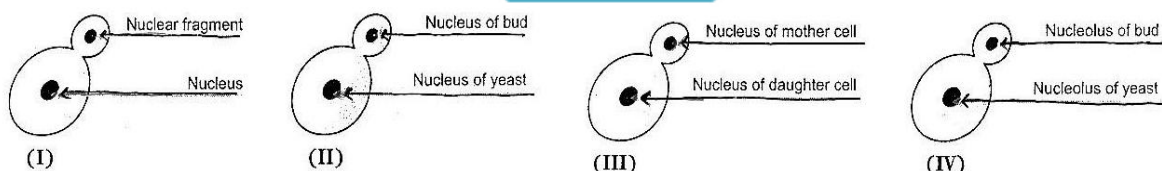
28. A student is asked to label his diagram made as observation on tracing the path of light ray through glass slab as follows :-



The correct sequence of labeling  $i$ ,  $r$ ,  $e$ , and lateral displacement respectively is,

- (a) (1), (2), (3) and (4)                      (b) (3), (4), (1) and (2)  
 (c) (1), (3), (2) and (4)                      (d) (3), (2), (4) and (1)

29. Out of the given diagrams, the correctly labelled diagram showing budding in yeast is :



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

30. 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.

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

31. Four stages of binary fission in amoeba are shown below. The stage at which nuclear fission and cytokineses are observed is, stage



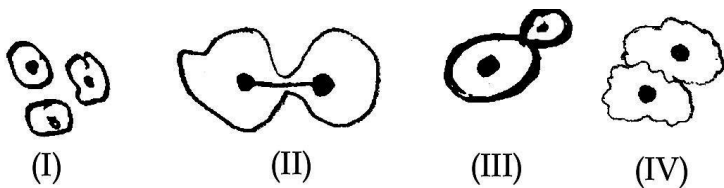
- (a) I                      (b) II                      (c) III                      (d) IV

32. To determine the percentage of water absorbed by the raisins, before final weighing of the raisins after being kept dipped in water for about two hours, extra water from the soaked raisins is removed by

- (a) dry cotton                      (b) filter paper                      (c) hot air blower                      (d) silken cloth

33. Out of the four slides I, II, III, and IV whose details are shown below, which one would 1

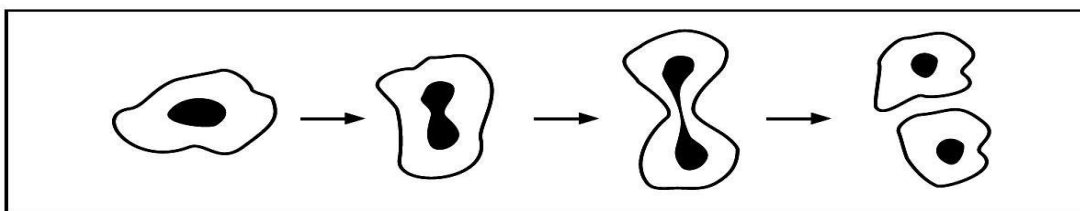
you focus under the microscope for observing budding in yeast ?



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

34. The process represented in diagram below is the :

- I. formation of spores in Amoeba. II. formation of bud taking place in Amoeba.  
 III. identical gametes being formed in Amoeba. IV. formation of daughter cells in Amoeba.



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

35. A student soaked 5 grams of raisins in 25 mL of distilled water in each of two beakers A and B. Beaker A was maintained at 25°C and beaker B at 50°C. After one hour, the student observed that the water absorbed by the raisins was :

- (a) same in case of A and B                      (b) less in case of A than in B  
 (c) exactly double in A, of that in B                      (d) exactly four times in A, of that in B

36. A student was given two slides, one of the budding in yeast and the other of binary fission in amoeba. He was asked to identify any one difference in the nucleus of the two. He observed both the slides and identified correctly \_\_\_\_\_

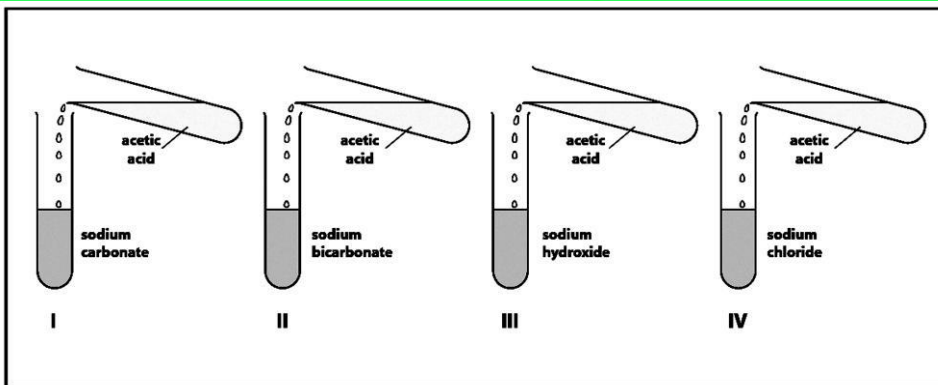
- a. presence of two distinct nuclei in amoeba, one in yeast cell and two in the bud.  
 b. presence of one nucleus in amoeba, two in yeast and one in its bud.  
 c. presence of single nucleus each in amoeba and yeast cell and none in the attached bud.  
 d. presence of two nuclei in the centrally constricted amoeba, one in yeast cell and one in its bud.

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

37. 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.

- (a) Sodium carbonate                      (b) Sodium hydroxide  
 (c) Sodium acetate                      (d) Lime water

38. 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

- (a) I and II      (b) II and III      (c) III and IV      (d) I and IV

39. Which of the following is not observed when Al is added to a solution of copper sulphate ?

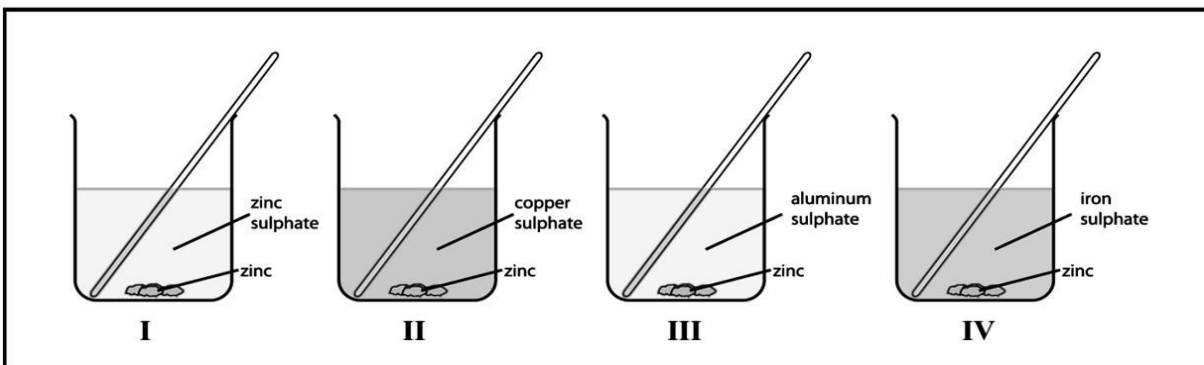
- a. Solution is blue in the beginning
- b. Final solution is colourless
- c. Final solution is light green
- d. Brown mass is deposited on Al.

TUTORIAL

40. Zinc granules were added to zinc sulphate, copper sulphate, aluminium sulphate and iron sulphate solutions as shown below. You would observe the deposition of metal on zinc in beakers

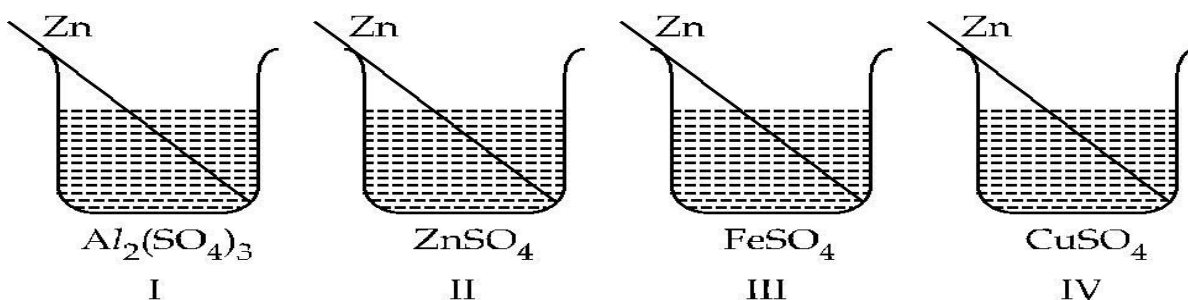
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- (a) I and III      (b) II and IV      (c) I and II      (d) III and IV

41. Four students A, B, C and D noted the initial colour of the solutions in beaker I, II, III and IV, After inserting zinc rods in each solution and leaving it undisturbed for about two hour he noted the colour of each solution again



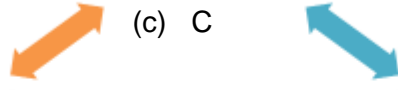
They recorded their observations in the form of table given below :

Student	Colour of the Solution	I	II	III	IV
		Initial	Colourless	Colourless	Light green
A	Final	Colourless	Colourless	Colourless	Colourless
	Initial	Colourless	Light yellow	Light green	Blue
B	Final	Colourless	Colourless	Light green	Colourless
	Initial	Colourless	Colourless	Light green	Blue
C	Final	Light blue	Colourless	Colourless	Light blue
	Initial	Light green	Colourless	Light green	Blue
D	Final	Colourless	Colourless	Dark green	Colourless

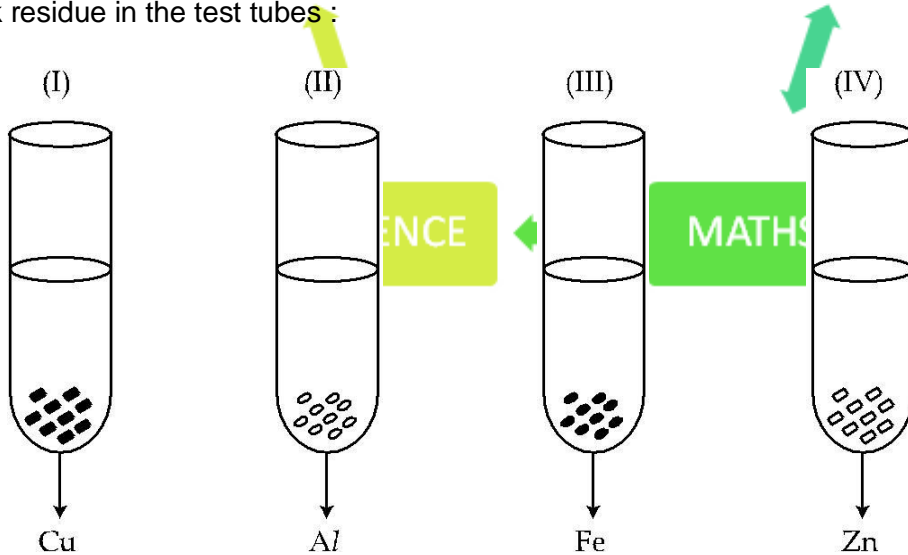
**TUTORIAL**

Which student noted the colour change in all the four beakers correctly?

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



42. A student takes copper, aluminium, iron and zinc metals separately in four test tubes labelled as I, II, III and IV respectively. He adds 10 mL of freshly prepared ferrous sulphate solution to each test tube and observes the colour of the metal residue in each case. He would observe a black residue in the test tubes :



- a) I and II    (b) I and III    (c) II and III    (d) II and IV