

SUMMATIVE ASSESSMENT - I (2011)

संकलित परीक्षा-I (2011)

SCIENCE / विज्ञान

Class - X / कक्षा - X

Time allowed : 3 hours

निर्धारित समय : 3 घण्टे

Maximum Marks : 80

अधिकतम अंक : 80

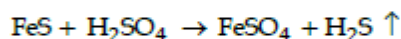
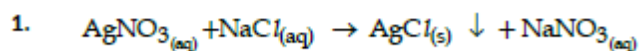
General Instructions :

- The question paper comprises of two sections, A and B. You are to attempt both the sections.
- All questions are compulsory.
- 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.
- All questions to section A and all questions of section B are to be attempted separately.
- Questions 1 to 4 in section A are one mark questions. These are to be answered in one word or one sentence.
- Questions 5 to 13 in section A are two marks questions. These are to be answered in about 30 words each.
- Questions 14 to 22 in section A are three marks questions. These are to be answered in about 50 words each.
- Questions 23 to 25 in section A are five marks questions. These are to be answered in about 70 words each.
- Questions 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.

सामान्य निर्देश :

- इस प्रश्न पत्र को दो भागों, भाग अ और भाग ब में बांटा गया है। आपको दोनों भागों के प्रश्नों के उत्तर लिखने हैं।
- सभी प्रश्न अनिवार्य हैं।
- पूरे प्रश्न पत्र पर कोई चयन प्राप्त नहीं है परन्तु पांच-पांच अंकों के पाँच प्रश्नों में भीतरी चयन दिया गया है। इन प्रश्नों में आप केवल एक भीतरी चयन को उत्तर लिखने के लिए चुन सकते हैं।
- आपको भाग अ और भाग ब के सभी प्रश्नों के उत्तर पृथक-पृथक लिखने होंगे।
- भाग अ के प्रश्न संख्या 1 से 4 के प्रश्न एक-एक अंक के हैं। इनके उत्तर एक शब्द अथवा एक वाक्य में दें।
- भाग अ के प्रश्न संख्या 5 से 13 के प्रश्न दो-दो अंकों के हैं। इनके उत्तर लगभग 30-30 शब्दों में देने हैं।
- भाग अ के प्रश्न संख्या 14 से 22 के प्रश्न तीन-तीन अंकों के हैं। इनके उत्तर लगभग 50-50 शब्दों में देने हैं।
- भाग अ के प्रश्न संख्या 23 से 25 के प्रश्न पांच-पांच अंकों के हैं। इनके उत्तर लगभग 70 शब्दों में देने हैं।
- भाग ब के प्रश्न संख्या 26 से 41 के प्रश्न प्रयोगात्मक कौशल पर आधारित बहुविकल्पी प्रश्न हैं। प्रत्येक प्रश्न एक अंक का है। दिए गये चार विकल्पों में से आपको केवल एक सबसे उपयुक्त विकल्प चुनना है।

SECTION-A / खंड-'अ'



Consider the above mentioned two chemical equations with two different kinds of arrows (\uparrow and \downarrow) along with product. What do these two different arrows indicate ?

- Name a non-metal which is lustrous and a metal which is non-lustrous.
- Bio - gas is also known as gobar gas. Justify.
- Name the instrument used to measure electric current in a circuit.

5. What is an alloy? State the constituents of solder. Which property of solder makes it suitable for welding electrical wires?
6. State the chemical name of plaster of Paris? Write a chemical equation to show the reaction between plaster of Paris and water.
7. (a) A solution of substance 'X' is used for white washing. What is the substance 'X'? State the chemical reaction of 'X' with water.
- (b) Why does the colour of copper sulphate solution change when an iron nail is dipped in it?
8. (a) Balance the following chemical equations:
- (i) $\text{BaCl}_2 + \text{H}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + \text{HCl}$
- (ii) $\text{Ca}(\text{OH})_2 + \text{HNO}_3 \rightarrow \text{Ca}(\text{NO}_3)_2 + \text{H}_2\text{O}$
- (iii) $\text{Pb}(\text{NO}_3)_2 \rightarrow \text{PbO} + \text{NO}_2 + \text{O}_2$
- (iv) $\text{MnO}_2 + \text{HCl} \rightarrow \text{MnCl}_2 + \text{H}_2\text{O} + \text{Cl}_2$
9. State two differences between arteries and veins.
10. Give reasons for the following:
- (a) Why is diffusion not sufficient to meet the oxygen requirements of all the cells in multicellular organisms?
- (b) How do desert plants perform photosynthesis if their stomata remain closed during the day?
11. The charge possessed by an electron is 1.6×10^{-19} coulombs. Find the number of electrons that will flow per second to constitute a current of 1 ampere.
12. What are permanent magnets and electromagnets? Give one use of each.
13. Explain the role of fuse in series with any electrical appliance in an electric circuit? Why should a fuse with defined rating for an electric circuit not be replaced by one with a larger rating?
14. (a) Why is respiration considered an exothermic reaction?
- (b) Define the terms oxidation and reduction.
- (c) Identify the substance that is oxidised and reduced in the reaction:
- $$\text{CuO}_{(s)} + \text{Zn}_{(s)} \rightarrow \text{Cu}_{(s)} + \text{ZnO}_{(s)}$$
15. A milkman adds a very small amount of baking soda to fresh milk.
- (i) What is the effect of addition of baking soda to milk?
- (ii) Why does this milk take long time to set as curd?

16. (i) Name the compound which is obtained from baking soda and is used to remove permanent hardness of water.
- (ii) Write its chemical formula.
- (iii) What happens when it is recrystallised from its aqueous solution ?
17. What is chemotropism ? Give one example. Name any two plant hormones and mention their functions.
18. State the functions of any three of the structural and functional unit of nervous system.
19. (a) Charcoal is a better fuel than wood. Why ?
- (b) How does biogas plant help to reduce the problem of pollution ?
20. Name the physical quantity which is (i) same (ii) different in all the bulbs when three bulbs of :
- (a) same wattage are connected in series
- (b) same wattage are connected in parallel
- (c) different wattage are connected in series
- (d) different wattage are connected in parallel
21. Two devices of rating 44W; 220 V and 11W; 220 V are connected in series. The combination is connected across a 440 V mains. The fuse of which of the two devices is likely to burn when switch is on ? Justify your answer.
22. A coil made of insulated copper wire is connected to a galvanometer. What will happen to the deflection of the galvanometer if this coil is moved towards a stationary bar magnet and then moved away from it? Give reason for your answer and name the phenomenon involved.
23. (a) How the metals at the top of the reactivity series can be extracted from their ores ? Explain with an example.
- (b) Name any one alloy made from
- (i) a metal and a non metal and
- (ii) two metals.

OR

- (a) Give two methods to prevent the rusting of iron ?
- (b) Name the ores of the following metals (i) mercury and (ii) zinc
- (c) Explain, with the help of a diagram, how copper metal can be refined ? Label the important arrangements in the experimental set up.

24.

(a) Draw diagram of human alimentary canal and label the following :

- (i) Part in which starch digestion starts.
- (ii) Part in which bile is stored.
- (iii) Part in which nutrients are absorbed.
- (iv) Part in which water is absorbed.

(b) Mention the role of hydrochloric acid in the stomach.

(c) What function is served by the following :

- (i) Gastric sphincter
- (ii) Anal sphincter

OR

(a) Draw diagram of respiratory system and label the following :

- (i) Part through which air is taken in.
- (ii) Part which protects the lungs.
- (iii) Part which carry the air into the lungs.

(b) What are alveoli ? Mention their role in respiration.

(c) Differentiate between aerobic and anaerobic respiration.

25.

(a) Two circular coils A and B are placed closed to each other. If the current in the coil A is changed, will some current be induced in coil B? Give reason.

(b) State the rule to determine the direction of a :

- (i) magnetic field produced around a straight conductor carrying current.
- (ii) force experienced by a current carrying straight conductor placed in a magnetic field, which is perpendicular to it.

OR

(a) A coil of insulated copper wire is connected to a galvanometer. What will happen if a bar magnet is :

- (i) pushed into the coil with its north pole entering first ?
- (ii) withdrawn from inside the coil ?
- (iii) held stationary inside the coil ?

(b) Name the above phenomenon and mention the name of the scientist who discovered it. State the law that relates the direction of current in the coil with the direction of motion

of the magnet.

SECTION -B/खंड-'ब'

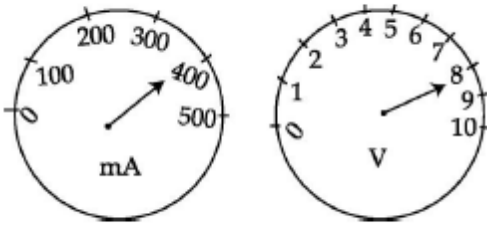
26. In an experiment to test the pH s of a given sample using pH paper, four students recorded the following observations for the sample tested by each one of them.

Sample taken.	pH paper colour turned to.
(I) Water	Blue
(II) Dil. HCl	Red
(III) Dil. NaOH	Blue
(IV) Dil. Acetic acid	Orange

The student who took the incorrect observation is :

- (a) I (b) II (c) III (d) IV
27. A colourless sample was tested with a strip of pH paper. The colour of the strip changed to green. The sample should be :
- (a) Tap water (b) distilled water
(c) sodium hydroxide (d) lemon juice
28. A blue litmus paper was first dipped in dil. HCl and then in dil. NaOH solution. It was observed that the colour of the litmus paper :
- (a) Changed to red (b) Changed first to red and then to blue
(c) Changed blue to colourless (d) Remained blue in both the solutions
29. If iron nails are kept in CuSO_4 solution for two hours, the colour of the solution will change in to :
- (a) Pink (b) Red
(c) Light green (d) Yellow
30. When aqueous solutions of sodium sulphate and barium chloride are mixed together we find that the reaction mixture :
- (a) turns red (b) forms a white precipitate
(c) forms a yellow precipitate (d) remains colourless

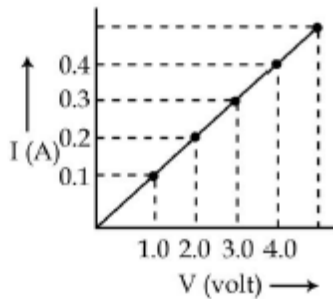
31. The readings of current flowing through a conductor and the potential difference across its two ends are shown in the ammeter and voltmeter given below.



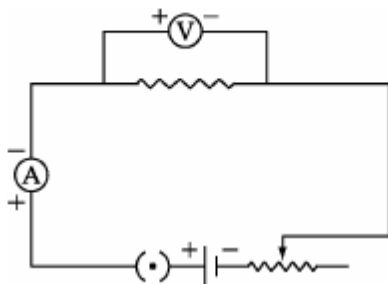
The resistance of the conductor would be

- (a) 20Ω (b) 5.0Ω (c) 2.0Ω (d) 0.2Ω
32. In the experiment to study the dependence of current on potential difference across a resistor, a student obtained a graph as shown in the diagram.

The value of resistance of the resistor is :



- (a) 0.1Ω (b) 1.0Ω (c) 10Ω (d) 100Ω
33. An ammeter has a range of (0-3) amperes and there are 30 divisions on its scale. What is its least count?
- (a) 1.0 A (b) 0.001 A (c) 0.1 A (d) 0.01 A
34. The two circuit components shown connected in parallel in the following circuit are :



- (a) rheostat and voltmeter
 (b) voltmeter and resistor
 (c) voltmeter and ammeter
 (d) ammeter and resistor.

35. For the circuits shown in figure-1 and figure-2 the ammeter reading would be :

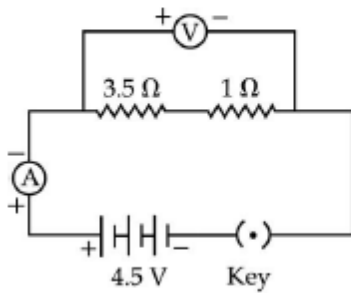


Fig. 1

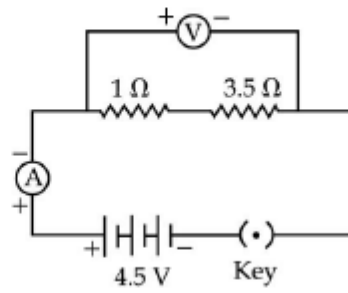


Fig. 2

- (a) 1.0A in figure 1 and 0.0A in figure 2 (b) 0.0A in both
 (c) 1.0A in both (d) 1.0A in figure 1 and 1.0A in figure 2

36. What is the right procedure to remove chlorophyll from a destarched leaf ?

- (a) Boil the destarched leaf in lime water.
 (b) Boil the destarched leaf in alcohol.
 (c) Boil the destarched leaf in water only.
 (d) Boil the destarched leaf in a mixture of alcohol and water.

37. To determine that light is essential for photosynthesis, following are the steps, but not in sequence :

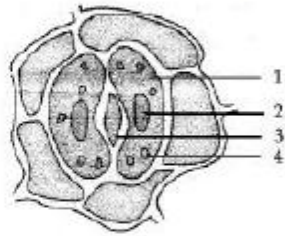
- (i) Pluck the leaf and do the starch test.
 (ii) Keep the selected plant in sunlight.
 (iii) Destarch the plant for 48 - 72 hours.

(iv) Cover the leaf with black paper strip.

The correct sequence is

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

38. After observing a temporary mount of leaf peel a student draws the following sketch of stomatal apparatus and numbers the parts to label them

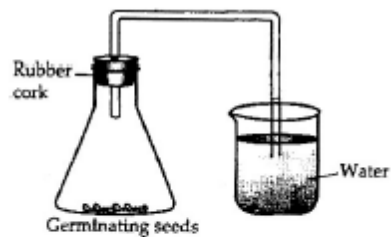


The chloroplast is denoted by

- (a) 1 (b) 2 (c) 3 (d) 4
39. Rakshita followed the following procedure for staining the temporary mount of leaf peel on slide.
- (I) to put a single drop of stain on leaf peel and wash it with water.
 - (II) to put a single drop of glycerine on leaf peel .
 - (III) cover the leaf peel with coverslip.
 - (IV) observe the slide under microscope.

Which of the following gives the correct sequence of steps ?

- (a) II, IV, I, III (b) I, II, III, IV
- (c) III, II IV, I (d) IV, II, I, III
40. The following experiment was set up to show that a gas is given out during respiration. But there was no rise in the level of water. This was because :



- (a) germinating seeds have not been kept under water in the flask.
 - (b) water is kept in the beaker instead of lime water.
 - (c) the cork on the flask is made of rubber.
 - (d) no substance is kept in the flask to absorb the gas given out by the seeds.
41. In the experiment demonstrating respiration in germinating seeds, KOH is used to :
- (a) absorb CO_2 produced by the seeds.
 - (b) absorb O_2 present in the flask
 - (c) absorb water vapour released by the seeds
 - (d) liberate O_2 to be used by the seeds.