ANKIT ANAND

MIS.

SUMMATIVE ASSESSMENT – I, 2015-16

SCIENCE

Class – X

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

General Instructions :

1. The 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. These are to be answered in **one word** or in **one sentence**
5. Question numbers **4** to **6** in **Sections-A** are **two marks** questions. These are to be answered in about **30 words** each.
6. Question numbers **7** to **18** in **Section-A** are **three marks** questions. These are to be answered in about **50 words** each
7. Question numbers **19** to **24** in **Section-A** are **five marks** questions. These are to be answered in about **70 words** each.
8. Question numbers **25** to **33** 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.
9. Question numbers **34** to **36** in **Section-B** are questions based on practical skills. Each question is of two **marks.**

SECTION-A

1 Define enzyme. Name one enzyme in humans which digests fats. lipase 1

2 Name the device that helps to maintain a potential difference across a conductor. Battery. 1

3 Name the major constituent of natural gas. methane 1

4 On placing a brown coloured substance in sunlight, it turns grey. This substance is also used in black and white photography. 2

Identify-

(a) The brown and grey substances;

(b) The type of reaction and state the form of energy in the presence of which this reaction takes place.

5 Name the reducing agent in the following reaction : 2

$3MnO_2 + Al \rightarrow 3\,Mn + Al_2O_3$

State which is more reactive, Mn or Al and why ?

6 (i) Name the hormones that are released in human males and females when they reach puberty. 2

(ii) Name a gland associated with brain. Which problem is caused due to the deficiency of the hormone released by this gland ?

7 (a) A solution of a substance 'X' is used for testing carbon dioxide. Write the equation of the reaction of 'X' with carbon dioxide. 3

(b) How is 'X' obtained? Write chemical equation.

8 (a) Name one natural source of each of the following acids : 3

(i) Citric acid

(ii) Oxalic acid

(iii) Lactic acid

(iv) Tartaric acid

(b) Which ion is commonly produced by all acids ?

9 (a) What is an alloy and how is it prepared give two examples of alloys. 3

(b) Iron is not used in its pure state. Give reason.

10 Write the chemical name and formula of bleaching powder. How is it prepared ? Write the 3

chemical equation and state any two uses of bleaching powder.

11 Differentiate between autotrophs and heterotrophs and give one example of each. 3

12 Identify and name the organs where the following processes take place : 3

(i) Site of the complete digestion of carbohydrates, proteins and fats.

(ii) The largest gland in human digestive system.

(iii) Site of absorption of digested food.

13 State how concentration of auxin stimulates the cells to grow longer on the side of the shoot which is away from light ? 3

14 You have two electric lamps having rating 40 W; 220 V and 60 W; 220 V. Which of the two has a higher resistance? Give reason for your answer. If these two lamps are connected to a source of 220 V, which will glow brighter? 3

15 A uniform magnetic field is directed vertically upwards. In which direction in this field should an α - particle (which are positively charged particles) be projected so that it is deflected south ward? Name and state the rule you have used to find the direction in this case. 3

16 A coil of insulated wire is connected to a galvanometer. Explain what happens if a bar magnet with its north pole towards one face of the coil is 3

(i) moved quickly towards the coil,

(ii) kept stationary inside the coil, and

(iii) moved quickly away from the coil.

17 A school organized an excursion tour for its students to study and observe that how do people in different villages use various sources of energy for their daily needs. They found in one of the villages that people use wood and cowdung cakes as a fuel whereas in other village they saw a bio gas plant outside the village. 3

Answer the following questions :

(i) If you compare the energy sources used by the people of both the villages, which practice would you prefer to be the best and why ?

(ii) State the associated values which you would get from this excursion trip.

18 List any three advantages of using solar cooker for cooking instead of fossil fuels. 3

19 (a) Dry pellets of common base 'X', when kept in open air absorbs moisture and turns sticky. The compound is also one of the products of chlor-alkali process. Identify 'X'. What type of reaction occurs when 'X' is treated with strong acid ? Write a balanced chemical equation for such reaction. 5

(b) Can we store the base 'X' in an aluminium container ? Give reason in support of your answer.

20 (a) Write electron dot structure for chlorine (At. No. 17) and calcium (At. No. 20). Show the formation of calcium chloride by the transfer of electrons. 5

(b) Identify the nature of the above compound and explain three physical properties of such compounds.

21 (a) Draw a diagram of human excretory system and label the following parts on it : 5

(i) Aorta (ii) Vena cava

(iii) Urinary bladder (iv) Left kidney

(b) List two vital functions of kidney.

22 (a) Heating element of electrical heating devices is made up of an alloy rather than a pure metal. Give two reasons. 5

(b) Four resistors of 4 Ω each are joined end to end to form a square PQRS. Calculate the equivalent resistance of the combination between two adjacent corners.

23 (a) Name two safety measures commonly used in an electric circuit and appliances. 5

(b) What precaution should be taken to avoid the overloading of domestic electric circuits ?

24 List two distinguishing features between the resistance and resistivity of a conductor. A wire is stretched so that its length becomes 6/5 times of its original length. If its original resistance is 25 Ω find its new resistance and resistivity. Give justification for your answer in each case. 5

36 Ω

SECTION - B

25 A drop of colourless liquid is poured over blue litmus paper and it turns red. The colourless liquid is : 1

(a) Sodium hydroxide solution

(b) sodium bicarbonate solution

(c) pure water

(d) dilute hydrochloric acid

26 Solid $NaHCO_3$ was placed on a strip of pH paper. The colour of strip - 1

(a) turned blue (b) did not change

(c) turned to green yellow (d) turned to light pink

27 A student performed reaction between dil. HCl and zinc granules and noted the properties of evolved hydrogen. Correct observations would be that hydrogen is : 1

(a) colourless and odourless (b) lighter than air

(c) almost insoluble in water (d) all the above properties

28 A chemistry lab-incharge kept Zn metal in $FeSO_4$ solution, and observed that after some time green $FeSO_4$ solution turns to colourless and some brown powder was deposited on zinc. In the above reaction, Zn metal acted as : 1

(a) Oxidising agent (b) Reducing agent

(c) Dehydrating agent (d) Catalyst

reduced

$Zn + FeSO_4 \rightarrow ZnSO_4 + Fe$

oxidised

29 $Fe(s) + ZnSO_4(aq) \rightarrow FeSO4(aq) + Zn.$ 1

The incorrect statement for the above shown equation is :

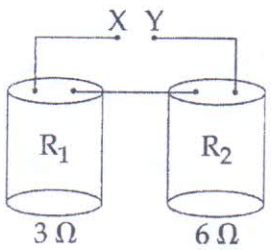
(a) The colourless solution is $ZnSO_4$

(b) Zn is less reactive than Fe

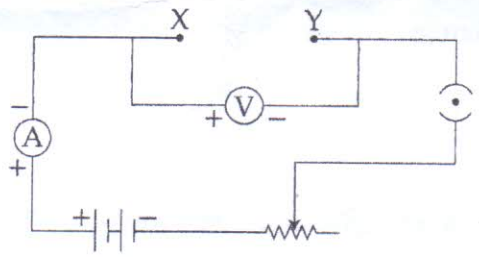
(c) Fe is less reactive than Zn

(d) The reaction does not occur.

30 A student connects resistance of the coils R_1 and R_2 as given below. 1



He then connects X and Y as shown in the circuit.



The average value of total resistance recorded in the circuit would be :

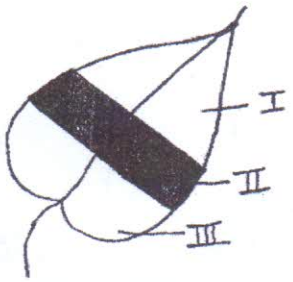
(a) 9 Ω (b) 3 Ω (c) 2 Ω (d) 6Ω

31 A student while measuring equivalent resistance of a parallel combination of resistance found that voltmeter reading was 3.5 V while the current was 0.7 A. He calculated equivalent resistance to be : 1

(a) 5 Ω (b) 2Ω (c) 2.45 Ω (d) 0.2Ω

32 Given alongside is a sketch of a leaf partially covered with black paper and which is to be used in the experiment to show that light is necessary for the process of photosynthesis. At the end 1

of the experiment, which one of the leaf parts labelled I, II and III will turn blue- black when dipped in iodine solution ?



(a) I only (b) II only

(c) I and III only (d) II and III only

33 Shubham sets up the apparatus to show that 'CO_2 is evolved during respiration.' After 3 hours he would observe : 1

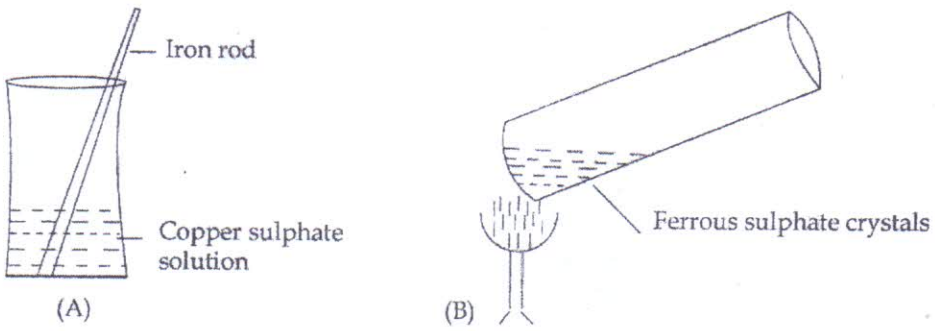
(a) Water level rising in the bent tube in the beaker

(b) Water level falling in the bent tube in the beaker

(c) Water turning turbid in the beaker

(d) Potassium hydroxide solution turns milky

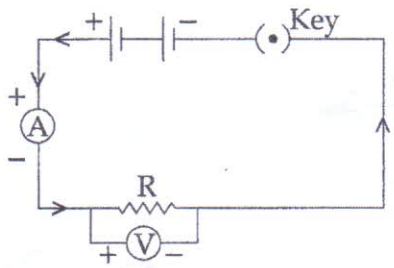
34 In a school laboratory two experiments (A) and (B) were performed as shown below. 2



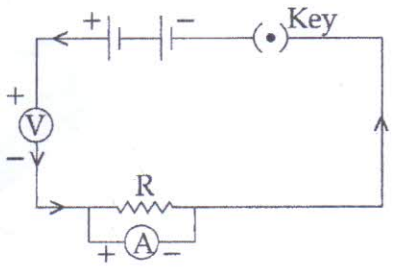
(i) What colour change in A and B would be observed ?

(ii) Mention the type of reaction in each case.

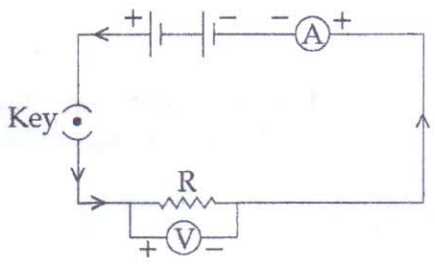
35 To study the dependence of Potential difference (V) on current I across Resistor (R), four circuit diagrams are prepared. 2



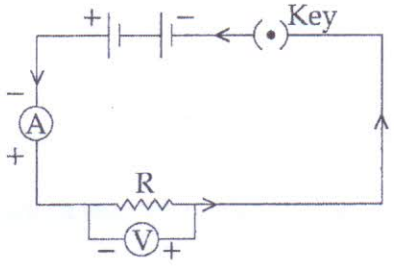
(I)



(II)



(III)



(IV)

(i) Select the circuit diagrams which are correct

(ii) Give reason for the circuit diagram which are not correct.

36 A student prepared the temporary mount of stained leaf peel. After observing the slide under microscope, he drew the following sketch. Identify and name the parts labelled as A, B, C and D. 2