FIRST MOCK EXAMINATION – JANUARY 2018

Roll No. | | | | | | | |

Series XXX / 5 Code No. 086 / 1 / 1

- Please check that this question paper contains 5 printed pages.
- Code number given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains 27 questions.
- Please write down the serial number of the question before attempting it.

SCIENCE

Class : X
Date : 11/01/2018

Time allowed : 3 hrs
Max. Marks : 80

General Instructions:

(i) The Question Paper comprises of 2 sections. A and B. You are to attempt both the sections separately.

(ii) All Questions are Compulsory. However, an internal choice is provided in two questions of 3 marks each and one question of 5 marks.

(iii) Question numbers 1 to 2 in Section A are 1-mark questions. These are to be answered in one word or one sentence.

(iv) Question Numbers 3 to 5 are two marks questions. These are to be answered in about 30 words each.

(v) Question Numbers 6 to 15 are three marks questions including a value-based question. These are to be answered in about 50 words each.

(vi) Question Numbers 16 to 21 are five marks questions. These are to be answered in about 70 words each.

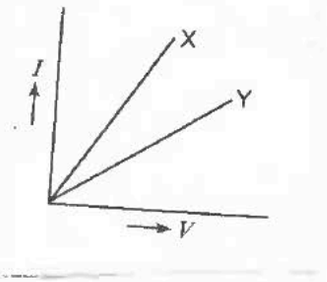
(vii) Question Numbers 22 to 27 are explanatory questions based on practical skills and each question carries two marks each.

SECTION A

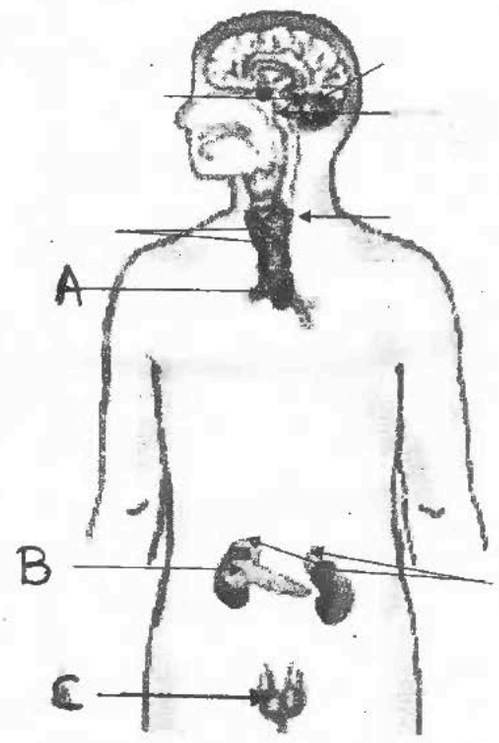
1. A coil of insulated copper wire is connected to a Galvanometer. What will happen if a Bar magnet is pushed into the coil? (1)
2. Name any two forest produce, each of which is the basis for some industry. (1)
3. What is the nature of salt of a strong acid and weak base. Justify your answer. (2)
4. State the Functions of the following parts of Human Eye:

   1. Iris 2. Retina (2)

5. V-I graph for the metallic wires X and Y at constant temperature are shown: If the two wires have same length and diameter, Which of the two wires has higher resistivity ? Why? (2)



6. Give Reasons for the following:
   1) The sky appears dark instead of blue to an astronaut in space.
   2) The Stars appear to twinkle. (3)
7. Why is Biogas a better fuel than animal dung cakes? (3)
8. Define the term Resistivity and give its S.I unit. On what factors does it depend? (3)
9. Compare alveoli in the lungs & nephrons in the kidneys with respect to their structure & functioning.? (3)
10.
   a) What is biological magnification?
   b) What happens when a food chain gets shortened?
   c) What is a watershed? (3)
11. Label A, B, C in the given diagram of Endocrine system in humans. Give one function of each. (3)



12. Mr Sharma was suffering from various types of diseases presently. He went for thorough check-ups & was diagnosed to be HIV +ve. Soon this news spread in his neighbourhood & on account of this, he faced social isolation.

Answer the following questions based on the information given above.

a) Do you think people's indifference towards HIV +ve people is justifiable? (0.5)

b) What kind of approach should we have towards the person suffering from AIDS? (1)

c) Name the causative agent. How can one protect oneself from this disease? (0.5+1)

OR

Write the balanced equation for photosynthesis. How are water & minerals transported in plants? (1+2)

13. (a) Describe the following in terms of gain or loss of oxygen with one example each.
(i) Oxidation (ii) Reduction

(b) Write balanced chemical equation for the reaction between lead nitrate and sodium chloride (3)

14. What is meant by isomers? Draw the structure of two isomers of n-pentane (C_5H_{12}) and write their IUPAC name. (3)

15. Write the name and structural formula of the compound formed when ethanol is heated at 443 K temperature with excess of con.H_2SO_4. What is the role of con.H_2SO_4 in this reaction? Also write the chemical equation for the reaction.

OR

What is homologous series of carbon compounds? Write the molecular formula of the second and third members of homologous series of carboxylic acids. State which part of these compounds determines their physical and chemical properties. (3)

16. Draw a diagram of human male reproductive system. Label any four organs of the system & write functions of any two organs. (5)

17. In one of his experiments with pea plants Mendel observed that when a pure tall pea plant is crossed with a pure dwarf pea plant, in the first generation (F1) only tall plants appear

a) What happens to the trait of dwarfness in this case? (1)

b) When the F1 generation plants were self- fertilized, he observed that the plants of second generation (F2) both tall & dwarf plants were present. Why it happened? Explain briefly. (2)

c) What are homologous organs? How do they provide evidence in support of evolution? (2)

18. a) With the help of a diagram, show the magnetic field produced by a Current-carrying coil.

b) How will the Magnetic field produced at a point P by the coil change if we increase:

1) the value of current flowing through the coil.
2) the number of turns of the coil ? (5)

19. a) "A convex lens can form a magnified, erect as well as magnified inverted Image of an object placed in front of it." Draw ray diagram to justify this Statement stating the position of the object with respect to the lens in each case.

b) An object of height 4 cm is placed at a distance of 20 cm from a concave Lens of focal length 10 cm. Use lens formula to determine the position of the Image formed. (5)

OR

You have two lenses A and B of focal lengths +10 cm and -10 cm respectively. State the nature and power of each lens. Which of the two lenses will form a virtual and magnified image of an object placed 8 cm from the lens? Draw a ray diagram to justify your answer.

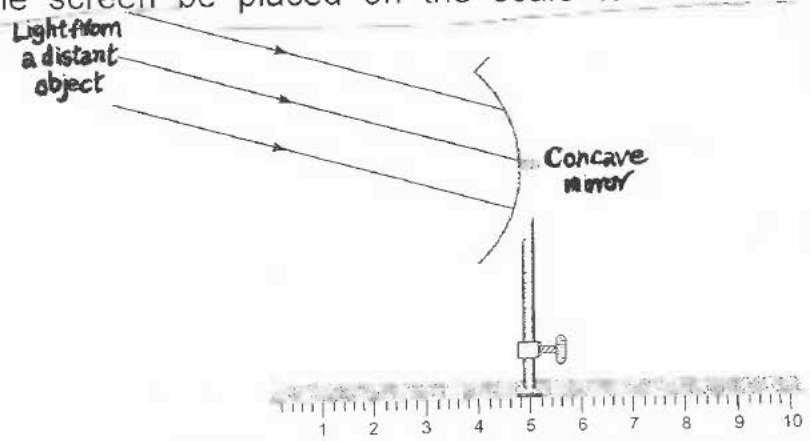
20. (a) Show the formation of $MgCl_2$ by the transfer of electron.
(b) Describe amphoteric nature of ZnO with the help of balanced chemical equations.
(c) Define roasting. (5)

21. Atoms of eight elements A,B,C,D,E,F,G and H have the same number of electronic shells but different number of electrons in their outermost shells. It was found that elements A and G combine to form an ionic compound. This compound is added in a small amount to all dishes during cooking. Oxides of element A and B are basic in nature while those of E and F are acidic. The oxide of D is almost neutral. Based on the above information answer the following questions.

i. To which group or period of the periodic table do the listed elements belong ?
ii. What would be the nature of compound formed by a combination of B and E ?
iii. Which of these elements could definitely be metals ?
iv. Which one of the eight elements is most likely to be found in gaseous state at room temperature?
v. If the number of electrons present in the outermost shell of elements C and G be 3 and 7 respectively, write the formula of the compound formed by the combination of C and G. (5)

SECTION- B

22. In the below set-up, the focal length of the concave mirror is 4 cm. Where should the screen be placed on the scale to obtain a sharp image? (2)



23. Three bulbs of 100W each are connected in series in an electrical circuit. In another circuit, another set of three bulbs of the same wattage are connected in parallel to the same source. Will the bulbs in the two circuits glow with the same brightness? (2)

24. Amongst dilute hydrochloric acid, dilute sodium hydroxide, distilled water and common salt solution which one will turn p^H paper blue and why ? (2)

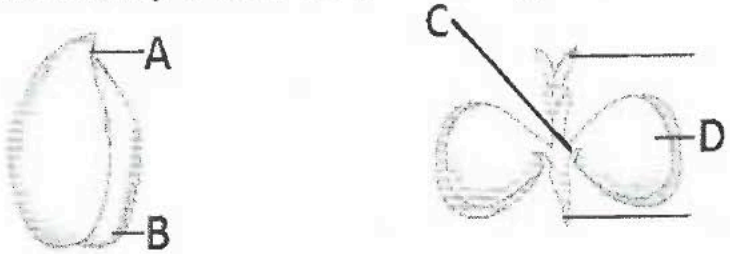
25. Soap molecule consists of long hydrocarbon chain with a negative charge to which is attached short ionic part consisting of positively charged sodium ion. Amongst the long hydrocarbon chain and short part sodium ion which is

(i) hydrophobic, (ii) hydrophilic. Give reason for your answer. (2)

26. During an experiment ' preparing the slide of leaf peel' a student mashes the leaf & selects the thinnest part to prepare the slide . Answer the following regarding to this experiment-

a) Do you think this is the correct way of taking a leaf peel? Why or why not?
b) From which part of a leaf we should take a peel?

27. Identify & label the parts of a gram seed in the diagram using clues given below-



i) Dark coloured protective covering

ii) Large broad thick leaves.

iii) The axis to which two cotyledons are attached.

iv) A small opening on the seed through which water enters the seed.