FIRST MOCK EXAMINATION – JANUARY 2018

Roll No. | | | | | | | |

Series XXX / 5 Code No. 086 / 1 / 2

- 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

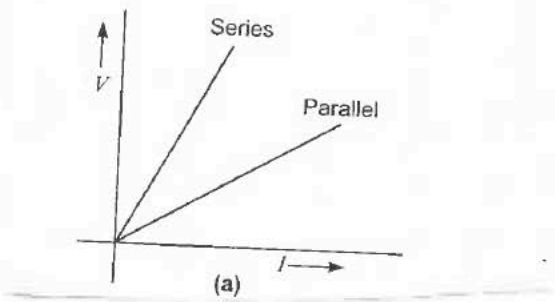
1. A coil of insulated copper wire is connected to a Galvanometer. What will happen if a bar magnet is held stationary inside the coil? (1)

2. How would you dispose the following wastes?
Domestic wastes like vegetable peels.
Industrial wastes like metallic cans (1)

3. State the functions of following parts of Human Eye:

1.Cornea 2.Ciliary Muscles. (2)

4. Two students perform the Experiment on series and parallel combinations of two given resistors R_1 and R_2 and plot the following V-I graph, check whether the graph is correctly labelled giving proper reason. (2)



5. What is the nature of salt of a strong base and weak acid. Justify your answer. (2)

6. Give Reasons:

1. The sky is blue in colour.

2. The planets do not twinkle. (3)

7. Biogas is considered to be a boon to the farmers. Why? (3)

8. Define the term Resistance and its S.I unit. On what factors does it depend. (3)

9. (a) Describe the following in terms of gain or loss of Hydrogen with one example each.

(i) Oxidation (ii) Reduction

(b) Write balanced chemical equation for the reaction between Manganese oxide and Hydrochloric acid. (3)

10. What is meant by isomers? Draw the structure of two isomers of butane (C_4H_{10}) and write their IUPAC name. (3)

11. Write the name and structural formula of the compound formed when ethanol is heated with alkaline $KMnO_4$.Write the role of alkaline $KMnO_4$ in this reaction. Also write the chemical equation for the reaction.

OR

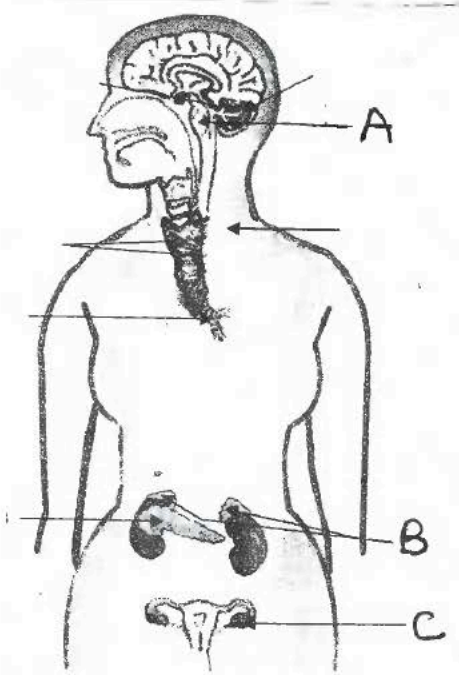
What is homologous series of carbon compounds? Write the molecular formula of the second and third members of homologous series of aldehydes. State which part of these compounds determines their physical and chemical properties.

12. Compare alveoli in the lungs & nephrons in the kidneys with respect to their structure &functioning.? (3)

13. a) Why do we say that the energy flow in food chains is always unidirectional ? What will happen if we kill all the organisms in one trophic levels (give three Points)?

b) List two advantages of properly managed watershed management. (3)

14. Label A, B, C in the given diagram of Endocrine system in humans. Give one function of each.



(3)

OR

Write a balanced equation for photosynthesis. Give the mechanism of translocation in plants. (1+2)

15. Arjun & Ram are students of class-IX. Both were initially good in studies. After some time, academic performance of Arjun started declining & he became irritable. This change was noticed by his class teacher. While interacting with Arjun she found out that he had six siblings & the whole family lived in a single room. His mother was not able to devote much attention to him & resources were not sufficient. The teacher motivated him to concentrate on his studies & counseled him.

Answer the following questions based on the information given above.

a) What do you think are the factors which are responsible for change in Arjun's behavior & his poor performance in studies?

b) How can you help people in promoting small families?

c) What values are promoted by the teacher?

16. (a) Draw a diagram of female reproductive system of human beings. Label any four parts of it & write the functions of any two parts. (1+2+1)

(b). How the sexual mode of reproduction leads to better survival of species? (1)

17. a) In a monohybrid cross between tall pea plants (TT) & short pea plants (tt) a scientist obtained only tall pea plants (Tt) in the F1 generation. However ,on selfing the F1 generation pea plants he obtained both tall & short plants in F2 generation. On the basis of above observations with other angiosperms also, can the scientist arrive at a law? If yes explain the law, if not, give justification for your answer. (3)

b) What are the significance of homologous & analogous organs in the process of evolution? (2)

18. (a) Show the formation of MgO by the transfer of electron.

(b) Describe amphoteric nature of Al_2O_3 with the help of balanced chemical equations.

(c) Define calcination. (5)

19. 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 which can also be extracted from sea water. 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. Which one of the eight element is likely to be a noble gas?
iii. Which one of the eight elements would have the largest atomic radius?
iv. Which two elements amongst these are likely to be non-metals?
v. If the number of electrons present in the outermost shell of elements B and F be 2 and 6 respectively, write the formula of the compound formed by the combination of B and F. (5)

20. 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.

OR

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)

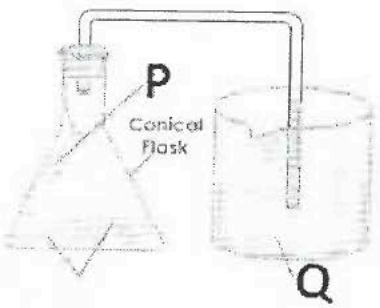
21a) .What is a Solenoid? Describe the pattern of Magnetic field shown by a current-carrying solenoid with the help of a diagram.

b) What are the factors on which the magnetic field of solenoid is dependent? (5)

SECTION B

22. While dissecting the seeds to observe their parts, the students have to take precautions about the seeds. Give any two precautions to be taken in this dissection. (2)

23. a) Why does the water level rise in the delivery tube during the experiment that CO_2 is given out during respiration in plants



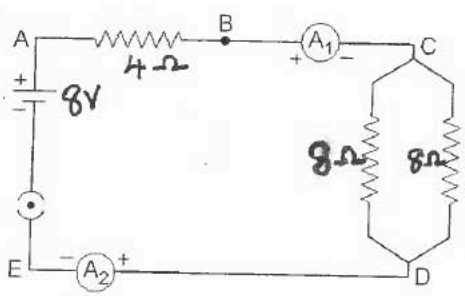
b) Label P in the test tube & Q in the beaker (2)

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

25. There are two samples of water A and B. The sample A lathers freely with soap but the sample B form a scum. Identify sample A and B. Classify the samples A and B on the basis of above information. (2)

26 List two precautions to be taken while doing the experiment "Refraction of light through Glass slab". (2)

27. Find out the following in the electrical circuit given below:



a) Potential difference across 4 Ω resistor.

b) Power dissipated in 4Ω resistor. (2)
