Series NBSE/1

SET-1

Code No. **086/1**

Roll No. | | | | | | | |

Candidates must write the Code No. on the title page of the answer-book.

- Please check that this question paper contains **8** 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.**
- **15** minutes time bas been allotted to read this question paper.

SCIENCE
X

Time allowed : 3 hours *Maximum Marks : 80*

General Instructions:

(*i*) *The question paper comprises of* ***three*** *sections–A, B, and C. You are to attempt all the sections.*

(*ii*) *All questions are* ***compulsory****.*

(*iii*) ***Internal choice*** *is given in Section B and C.*

(*iv*) *Question numbers* ***1*** *to* ***20*** *in Section-A are one-mark questions. These are to be answered in one word or in one sentence.*

(*v*) *Question numbers* ***21*** *to* ***30*** *in Section-B are three-marks questions. These are to be answered in about* ***50*** *words each.*

(*vi*) *Question numbers* ***31*** *to* ***36*** *in Section-C are five-marks questions. These are to be answered in about* ***70*** *words each.*

SECTION - A

1. Which among the following statements is incorrect for magnesium metal? **1**

(a) It burns in oxygen with a dazzling white flame.

(b) It reacts with cold water to form magnesium oxide and evolves hydrogen gas.

(c) It reacts with hot water to form magnesium hydroxide and evolves hydrogen gas.

(d) It reacts with steam to form magnesium hydroxide and evolves hydrogen gas.

2. Alloys are homogeneous mixtures of a metal with a metal or non-metal. Which among the following alloys contain non-metal as one of its constituents? **1**

(a) Brass (b) Bronze (c) Amalgam (d) Steel

3. Which of the following phenomena occur, when a small amount of acid is added to water? **1**

(i) Ionisation, (ii) Neutralisation, (iii) Dilution, (iv) Formation

(a) (i) and (ii) (b) (i) and (iii) (c) (ii) and (iii) (d) (ii) and (iv)

4. Electrolysis of water is a decomposition reaction. The mole ratio of hydrogen and oxygen gases liberated during electrolysis of water is **1**

(a) 1 : 1 (b) 2 : 1 (c) 4 : 1 (d) 1 : 2

5. Two resistors of resistance 2 and 4when connected to a battery will have **1**

(a) same current flowing through them when connected in parallel

(b) same current flowing through them when connected in series

(c) same potential difference across them when connected in series

(d) different potential difference across them when connected in parallel

6. To convert an AC generator into DC generator 1

(a) Split ring type commutator must be used

(b) Slip rings and brushes must be used

(c) A stronger magnetic field has to be used

(d) A rectangular wire loop has to be used

7. Choose the incorrect statement regarding wind power. 1

(a) It is expected to harness wind power to minimum in open space

(b) The potential energy content of wind blowing at high altitudes is the source of wind power

(c) Wind hitting at the blades of a windmill causes them to rotate. The rotation thus achieved can be utilised further

(d) One possible method of utilizing the energy of rotational motion of the blades of a windmill is to run the turbine of an electric generator

8. If a grasshopper is eaten by a frog, then the energy transfer will be from 1

(a) producer to decomposer

(b) producer to primary consumer

(c) primary consumer to secondary consumer

(d) secondary consumer to primary consumer

9. Select the eco-friendly activity among the following: 1

(a) Using car for transportation

(b) Using polybags for shopping

(c) Using dyes for colouring clothes

(d) Using windmills to generate power for irrigation

10. Which of the following statements is correct regarding the propagation of light of different colours of white light in air? 1

(a) Red light moves fastest

(b) Blue light moves faster than green light

(c) All the colours of the white light move with the same speed

(d) Yellow light moves with the mean speed as that of the red and the violet ligh

11. What are 'nastic' movements ? Give one example **1**

12. A compound which is prepared from gypsum has the property of hardening when mixed with a proper quantity of water, Identify the compound. **1**

13. Write the name and formula of the 2nd member of homologous series having general formula CnH2n **1**

14. Give the formula of Iron(II) oxide and Iron (III) oxide. **1**

15. Whar are enzymes? **1**

16. State two ways to prevent rusting of iorm. **1**

17. Tate two positions in which concave mirror produces a magnified image of a given object. **1**

18. What is the importance of DNA copying in reproduction? **1**

19. What are noble metals? **1**

20. Why covalent compounds have low melting and boiling point? **1**

SECTION - B

21. Give reason for the following **3**

(a) Titanium is called a strategic metal

(b) Non-metals do not form positively charged ions

(c) Aluminium is a reactive metal but does not easily corrode as iron metal.

22. What is meant by 'rusting'? With labelled diagrams describe an activity to find out the conditions under which iron rusts. **3**

OR

A metal 'X' acquires a green colour coating on its surface on exposure to air.

(i) Identify the metal 'X' and name the process responsible for this change.

(ii) Name and write the formula of green coating formed on the metal.

(iii) List two important methods to prevent this process.

23. Explain analogous organs and homologous organs. Identify the analogous and homologous organs amongst the following: **3**

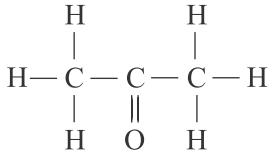
Wings of an insect, wings of a bat, forelimbs of frog, forelimbs of human.

24. (a) Explain the terms: (i) Implantation (ii) Placenta **3**

(b) What is the average duration of human pregnancy?

25. (a) Why are covalent compounds generally poor conductors of electricity? **3**

(b) Name the following compound:



(c) Name the gas evolved when ethanoic acid is added to sodium carbonate. How would you prove the presence of this gas?

26. (a) Draw a schematic, labelled diagram of a domestic wiring circuit which includes **3**

(i) a main fuse (ii) a power meter (iii) one light point (iv) a power output socket

(b) In this circuit, on which wire is the mains on/off switch connected?

OR

(a) Distinguish between the terms 'overloading' and 'short-circuiting' as used in domestic circuits.

(b) Why are the coils of electric toasters made of an alloy rather than a pure metal?

27. How is ozone formed in the upper atmosphere? Why is damage to ozone layer a cause of concern to us? What causes this damage? **3**

28. (a) What is the role of scrotum **3**

(b) What is tubectomy?

(c) What is the name of surgical procedure done to males to control population?

29. Give reasons for the following observations: **3**

(a) Ionic compounds in general have high melting and boiling points.

(b) Highly reactive metals cannot be obtained from their oxides by heating them with carbon.

(c) Copper vessels get a green coat when left exposed to air in rainy season.

30. The image of a candle flame placed at a distance of 45 cm from a spherical lens is formed on a screen placed at a distance of 90 cm from the lens. Identify the type of lens and calculate its focal length. If the height of the flame is 2 cm, find the height of its image. **3**

OR

Name the type of mirror used in the following situations:

(a) Headlights of a car

(b) Rear-view mirror of a vehicle

(c) Solar furnace

Support your answer with reason.

SECTION - C

31. (a) Draw a diagram of excretory system in human beings and label on it: **5**

Aorta, *Vena cava*, *Urinary bladder*, *Urethra*

(b) List two vital functions of kidney.

32. (a) What do you mean by meristematic cells? **5**

(b) State the key features of meristematic plant cells.

(c) Explain the difference between an apical and lateral meristematic cells.

OR

(a) What are animal hormones? List their two characteristics.

(b) Name the hormone:

(i) Which bring changes in human male during the start of adolescence?

(ii) Which hormone coordinates the level of blood sugar?

33. Two resistors with resistance 5 Ω and 10 Ω respectively are to be connected to a battery of emf 6 V so as to obtain. **5**

Case I. Minimum current flowing

Case II. Maximum current flowing

(a) How will you connect the resistance in each case?

(b) Calculate the strength of total current in the circuit in the two cases.

34. (a) Which two criteria did Mendeleev use to classify the elements in his periodic table. **5**

(b) State Mendeleev's Periodic law.

(c) State one limitation of Mendeleev's Periodic Table.

(d) How and why does the metallic character vary as you go:

(i) From left to right along a period? (ii) Down a group?

OR

Differentiate between the following.

(a) Period and group

(b) Atomic radii and Ionic radii

(c) Ionization energy and electronegativity

(d) Reactivity of metals and Halogens.

35. (a) What is a magnetic field? How can the direction of magnetic field lines at a place be determined? **5**

(b) State the rule for direction of the magnetic field produced around a current carrying conductor. Draw a sketch of the pattern of field lines due to current flowing through a straight conductor.

36. What are hydrocarbons? Write the name and general formula of **5**

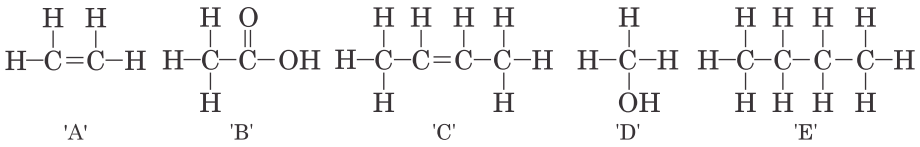
(i) saturated hydrocarbons,

(ii) unsaturated hydrocarbons and draw the structure of one hydrocarbon of each type.

How can an unsaturated hydrocarbon be made saturated?

OR

The structural formulae of five compounds are given below



(i) Which two compounds belong to the same homologous series?

(ii) Which compound belongs to the same homologous series as ethanol?

(iii) Which compound on hydrogenation produces E?

(iv) Which compound when dissolved in water turns blue litmus red?

(v) What will be the compound formed by the reaction of 'B' with 'D'? Write the chemical reaction.