

# D.A.V. PUBLIC SCHOOLS

BIHAR ZONE

Mid Term Examination – 2019 – 2020

Class – X

Time – 3 Hrs.

Subject – SCIENCE

F.M. – 80

## General Instructions:

1. The question paper comprises of two sections, A and B. Attempt both the sections separately.
2. There is no overall choice. However, internal choice has been provided in question no. 34 to 36.
3. Only one option is to be attempted in such questions.
4. Question nos. 01 to 20 in section A are 1 marks question.
5. Question nos. 21 to 30 in section B are 3 marks question.
6. Question nos. 31 to 36 in section B are 5 marks question.

### Section – A

1. On putting a few drops of liquid on a pH paper strip, the colour of pH strip changes to green. The liquid is most probably – 1
- a) lemon juice
  - b) dil. HCl
  - c) NaOH solution
  - d) water
2. A device used to detect the presence and direction of current – 1
- a) a rheostat
  - b) a voltmeter
  - c) an ammeter
  - d) a galvanometer

P.T.O.



3. When a few drops of universal indicator were added to a dilute solution of HCl, it is observed that the colour of the solution changes from – 1

- a) colourless to blue
- b) colourless to red
- c) blue to colourless
- d) colourless to green

4. Rahul took some zinc granules in a test tube and added dil. HCl to it. He observed that the zinc granules changed to - 1

- a) yellow
- b) brown
- c) black
- d) white

5. Aluminium powder was added to a solution of copper sulphate. The colour of the solution changed from 1

- a) colourless to blue
- b) blue to colourless
- c) light green to blue
- d) reddish brown to light green

6. We test for starch and not glucose to prove that photosynthesis has taken place because- 1

- a) glucose is not produced during photosynthesis in variegated leaves
- b) glucose formed during photosynthesis gets stored as sucrose
- c) glucose formed during photosynthesis gets stored as starch
- d) glucose is staple product and cannot be tested

Which has highest resistance – 1



[ 3 ]

a) (60 W, 220 V)

b) (100 W, 220 V)

c) (30 W, 220 V)

d) (10 W, 220 V)

8. A student is given two resistors  $R_1$  and  $R_2$ . If the individual resistances  $R_1$  and  $R_2$  are 3 ohms and 6 ohms, the ratio of maximum to minimum resistance is

a) 9 ohms: 2 ohms

b) 2 ohms: 9 ohms

c) 9 ohms: 3 ohms

d) none

9. A student did the experiment to find the equivalent resistance, of two given resistors,  $R_1$  and  $R_2$ , first when they are connected in series and next when they are connected in parallel. The two values of the equivalent resistance obtained by him were  $R_s$  and  $R_p$  respectively. He would find that

a)  $R_s > R_1$  and  $R_2$  alwaysb)  $R_p < R_1$  and  $R_2$  always

c) both (a) and (b)

d)  $2R_s = R_p$ 

10. Stomata plays an important role in

a. respiration

b. photosynthesis

c. transpiration

d. All of these

11. Surfaces of some metals lose their brightness when kept in air for a long time. Why?

12. *write two properties of magnetic field - P & me.*  
Mention one feature of biogas that makes it an ideal fuel.

13. Define the SI unit of current.



14. How will you connect a fuse wire with an electrical device? 1
15. Which plant hormones is responsible for cell division? 1
16. What is photolysis of water? 1
17. Write balanced bio-chemical equation of photosynthesis. 1
18. A 4 ohm resistance wire is bent in the form of a circle. Find the effective resistance between the ends of a diameter. 1
19. The resistance of a wire is R ohm. What will be its new resistance if it is stretched to n times its original length? 1
20. What is meant by the pH of a solution? 1

## Section - B

21. 2 g of ferrous crystals were heated in a hard glass test tube and observations recorded: 3
- What was the successive colour change?
  - Identify the liquid droplets collected, on the cooler parts of the test tube.
  - What type of colour is observed on heating ferrous sulphate crystals?
  - Name the products obtained on heating ferrous sulphate crystals.
  - What type of reaction is taking place?
22. Name the constituents of baking powder. What is the function of each constituent of baking powder in the manufacture of cake? 3
23. A metal carbonate 'X' on reacting with an acid gives a gas which when passed through solution of 'Y' gives the carbonate back. On the other hand, a gas 'Z' that is obtained by reaction of black oxide 'A' with conc. HCl on heating reacts with solid 'Y' to give a compound 'B' which is used for disinfecting drinking water. Identify 'X', 'Y' and 'Z'? 3
24. Name the plant growth hormone which is synthesised at the shoot tip. Explain briefly why does a



plant shoot bend towards light during its growth.

25. With the help of a schematic diagram, trace the sequence of events occurring, when you step on a sharp object. Name the action. 3

26. Give three functions of the nervous system. 3

27. State three advantages associated with using solar cells to produce electricity. 3

28. State three advantages of AC over DC  
 a) Distinguish between electrical resistance & resistivity of a conductor. 3

28. b) A copper wire of resistivity  $1.6 \times 10^{-8}$  ohm-metre has a cross-sectional area of  $20 \times 10^{-8}$  sq.cm. Find the length of this wire required to make a 10 ohm coil. 3

29. a) Give the relation of commercial unit of electrical energy to joule. 3

b) Which of the two—a 250 W bulb used for 5 hours or a 1500 W toaster used for 20 minutes uses more energy? Give reason.

30. How does the strength of the magnetic field produced at the centre of the circular coil of wire depend on— 3

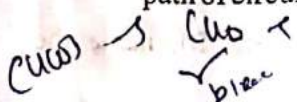
- a) the radius of the coil,
- b) the number of turns of the coil
- c) the strength of current flowing in the coil

31. a) Give the reaction involved in 5

- i) roasting of zinc chloride <sup>Sulphide</sup>
- ii) calcination of zinc carbonate

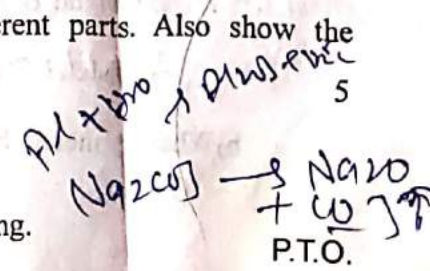
b) An alkali metal 'A' gives a compound 'B' (molecular mass 40) on reacting with water. The compound 'B' gives a soluble compound 'C' on treatment with Al. Identify 'A', 'B' and 'C'. Also give the chemical reactions involved.

32. Draw the cross-section of human heart and label all its different parts. Also show the path of circulation by arrows. 5



OR

(a) What are cranial and spinal nerve? Write their number in human being.





(b) Draw a diagram of human brain and label the following parts

- (i) Cerebrum
- (ii) Meninges
- (iii) Medula Oblongata

33. a) Give the principle behind the working of the following devices.

- i) AC generator
- ii) electric motor
- iii) a fuse

b) State the rules used to identify

- i) force on a wire carrying current in a magnetic field.
- ii) direction of current induced in a coil rotating in a magnetic field.

34. Explain-

- a) Melting and boiling points of ionic compounds are high
- b) Aluminium is more active than iron, yet there is less corrosion of Al when exposed to air.
- c) Solder is used for welding electrical wires together.
- d) A sulphide ore is converted into its oxide to extract the metal.
- e) Tarnished copper vessels are cleaned with tamarind juice.

OR

a) Giving one example of each, explain how the following metals are obtained from their compounds by the process of reduction.

- i) Metal 'A' which is low in the activity series of metals.
- ii) Metal 'B' which is in the middle of the activity series of metals.
- iii) Metal 'C' which is high in the activity series of metals.

b) What is meant by refining of metals? In the electrolytic refining of metal M, name the



cathode, anode and the electrolyte.

35. a) Draw a neat diagram of an excretory unit of a human kidney and label the following part: 5

- 3
- i) Bowman's capsule
  - ii) renal artery
  - iii) glomerulus
  - iv) collecting duct

b) Give one advantage of having a large no of these highly coiled structures in our kidneys

c) Mention any two substances which are selectively reabsorbed as the filtrate flows along the tubular part of this unit.

OR

a) Draw a neat diagram of human respiratory system and label the parts-

- i) that has cartilagenous rings,
- ii) that encloses the vocal cords,
- iii) sheet of muscle that separates the chest cavity from the abdominal cavity.
- iv) serves as a common passage for food and air.

b) How are the alveoli designed to maximise the exchange of gases? Suggest any two features.

36. Draw the pattern of magnetic field lines through and around a current carrying solenoid. What does the magnetic field pattern inside the solenoid indicate? How can this principle be utilised to make an electromagnet? State two ways by which strength of this electromagnet can be increased. 5

OR

a) Describe an activity to show how a moving magnet may be used to generate an electric current.

State the rule to find the direction of electric current in the coil

b) A coil 'A' of insulated copper wire is connected to a galvanometer. What would you observe when

- i) a current carrying coil 'B' is brought near 'A'?
- ii) strength of current in coil B is changed?

