NATIONAL PUBLIC SCHOOL
BENGALURU
PERIODIC TEST 2 – 2019-20
SCIENCE

Class: 10
No. of pages: 7

Max. Marks: 80
Time: 3 hrs

General Instructions:

- ***The question paper comprises of four sections A, B, C and D. You are to attempt all the sections.***
- ***All questions are compulsory.***
- ***There is an internal choice in three questions of one mark in Section A, three questions of three marks in Section B and three questions of five marks in Section C.***
- ***Question numbers 1 to 10 in Section A include Very short answer questions and Assertion- Reason questions of one mark each. These are to be answered in one word or one sentence.***
- ***Question numbers 11 to 20 in Section B are three mark questions. These are to be answered in about 50 words each.***
- ***Question numbers 21 to 26 in Section C are five mark questions. These are to be answered in about 70 words each.***
- ***Question numbers 27 to 36 in Section D are Multiple Choice Questions based on practical skills .Each question carries one mark. Select the correct option and write in the answer sheet.***

Section- A

1. Name any two characteristics of a good source of energy. 1

OR

Name any two green-house gases.

2. Identify the oxidising and reducing agent in the following reaction: 1

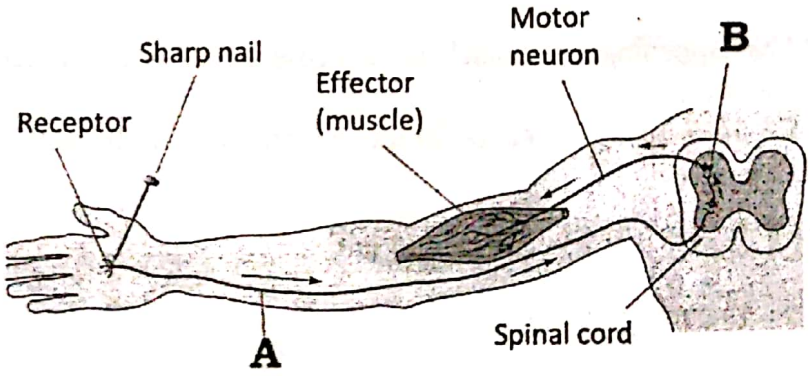
$$CuO + H_2 \longrightarrow Cu + H_2O$$

3. Schematically represent an aquatic food chain showing all four trophic levels. 1
4. Draw a schematic diagram of an electric circuit showing current flowing through a bulb, a rheostat and a battery of 4 V. 1
5. What is rancidity? 1

OR

Mention two examples of combination reactions which are exothermic.
(Equation not required)

6. Observe the diagram given below and name the parts labelled as **A** and **B**. 1



OR

Name the sensory receptors that detect :

a) smell b) taste

7. Define biological magnification. 1

Questions 8-10 consists of two statements– assertion (A) and reason (R).
Select the appropriate option and write it on the answer sheet:
a) Both A and R are true, R is the correct explanation of A
b) Both A and R are true, but R is not the correct explanation of A
c) A is true, R is false
d) A is false, R is true

8. Assertion (A): On changing the direction of flow of current through a straight conductor, the direction of magnetic field around the conductor is reversed. 1
Reason (R): The direction of the magnetic field around a conductor can be given in accordance with the left hand thumb rule.

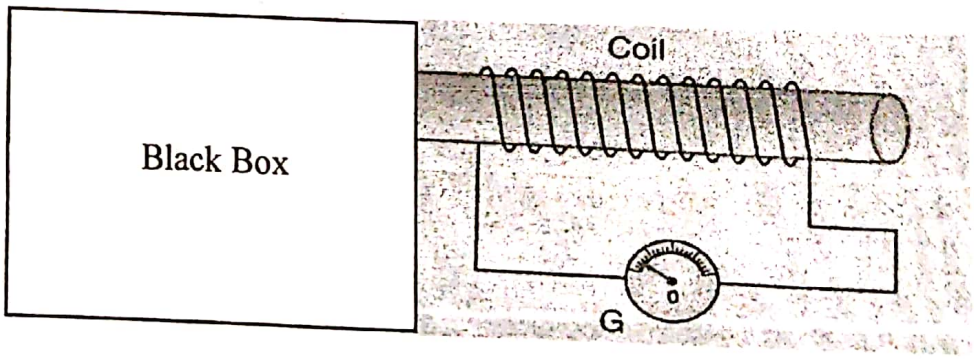
9. Assertion (A): Zinc oxide is amphoteric in nature 1
Reason (R): Zinc oxide reacts with both acids and bases.

10. Assertion (A): Animals can react to stimuli in different ways. 1
Reason (R): all animals have a nervous system and an endocrine system involving hormones.

Section-B

11. State an observation and mention the type of reaction: 3
a) Lead nitrate solution is added to potassium iodide solution.
b) Silver chloride is kept in a china dish in sunlight.
c) A copper coin is placed in silver nitrate solution

12. The diagram below shows the set-up for an experiment. While conducting the experiment, it was observed that the pointer of the galvanometer goes to one side of the central zero mark and then quickly returns to the zero mark.



a) What could be happening in the black box to cause the above observation? Justify your answer. 2
b) How could a momentary deflection in the galvanometer in the opposite direction be obtained? 1

13. Draw the structure of nephron and label any four parts. 3

14. a) Give the chemical equation for thermite process. 3
b) List two properties of carbon in which its behaviour is not as expected from its classification as a non- metal.
c) Name the material used as anode and cathode in the electrolytic refining of copper.

15 Three resistors R1, R2 and R3 are connected in series to a battery. Draw the circuit diagram and obtain an expression for the effective resistance of the series combination. State any two properties of the given combination. 3

OR

Three resistors R1, R2 and R3 are connected in parallel to a battery. Draw the circuit diagram and obtain an expression for the effective resistance of the parallel combination. State any two properties of the given combination. 3

16. Enumerate any three plant hormones with their functions. 3

OR

Mention any two endocrine glands with their secretion and function.

17. Justify the following statements:
a) Food chain with two trophic level is most advantageous in terms of energy. 1
b) Flow of energy in an ecosystem is always unidirectional. 1
c) Damage to ozone layer is a cause for concern. 1

18. a) How does the magnetic field due to a current-carrying circular coil change when the number of turns is increased? Justify your answer. 2
b) Where can such a set-up be used? 1

19. You have gone on a trekking trip along with your friends Riya, Amit and Neha. While trekking Amit complains of stomach pain and burning sensation in the stomach .Riya gets stung by a red ants and is in pain.
a) What remedy can be provided to these two from the first aid kit? 2
b) How will it help in relieving their pain? Explain 1

OR

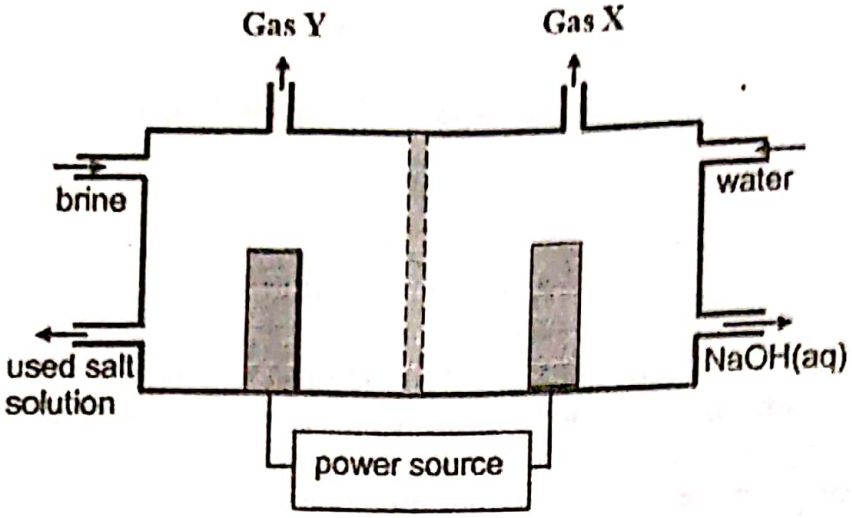
A farmer in a village sent his soil sample to a lab for analysis. The sample of soil is mixed with water and allowed to settle. The clear supernatant solution turns the pH paper yellowish orange.
a) What is the nature of the soil sample? 1
b) Suggest two chemicals that can be used by the farmer to treat this soil and give reason for the same. 2

20. Energy is required for all our day-to-day activities. List any activity that you carried out in the morning which required the use of a non-renewable source of energy. Suggest a way in which this same activity can be carried out using a renewable source of energy. Give a reason for your choice of renewable source of energy. 3

Section - C

21. A heater is rated at 4 kW, 220 V. Calculate the 5
a) current flowing through the heater
b) resistance of the heater
c) energy consumed in 2 hours
d) total cost if 1 kWh is priced at Rs. 4.50.
e) total charge flowing through the heater in 10 minutes.

22.



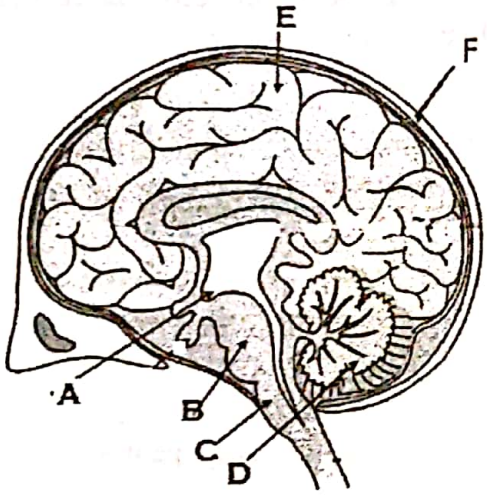
a) Identify the process shown in the above diagram. A gas X formed as a by –product in this process reacts with lime water to form a compound Z ,used for disinfecting swimming pools. Name X, Y and Z .Write the equation involved in the formation of Z. 3

b) Justify the following: 2

i) Dry HCl gas does not change the colour of dry blue litmus paper

ii) Solution of potassium carbonate is basic in nature.

23. Observe the brain diagram given below and answer the following questions.



a) Identify and name the parts labelled from A to F. 2

b) What is the function of the brain parts labelled as C and D. 3

24. a) Why is a fuse used in the domestic circuit? 2

b) Draw a labelled schematic diagram of a common domestic circuit. 3

OR

A uniform magnetic field exists in the plane of the paper from bottom to top. A force existing out of the plane of the paper acts on a proton and an electron moving in the magnetic field.

a) Predict the directions in which the electron and proton will move and name the rule you have used. 2

b) Draw a neat labelled diagram of a device which is based on this rule. 3

25. a) An ore of a metal M, on treatment with dil HCl liberates a gas with brisk effervescence which turns lime water milky. M is used in galvanising iron articles. Identify M and its ore. How can the metal be obtained from its concentrated ore? Give equations involved in the process. 3

b) Give reasons for the following: 2
i) Aluminium is a reactive metal but is still used for packing food articles
ii) Ionic compounds have a high melting point.

OR

a) A metal X burns with a golden yellow flame, is soft and can be cut with a knife. Its oxide is water soluble and the compound formed has molecular mass 40 u. 3
i) Why is X stored under kerosene? (Give equation)
ii) Give the electron dot structure to show the formation of the compound between X and an element Y (Atomic no. 8)

b) Give reasons for the following: 2
i) Carbon cannot reduce the oxides of calcium or magnesium.
ii) Metals do not liberate hydrogen when treated with nitric acid.

26. a) How would the process of digestion in man be affected, if there is a blockage in the pancreatic duct?

b) What would be the consequences of a deficiency of haemoglobin in our bodies? 3+2

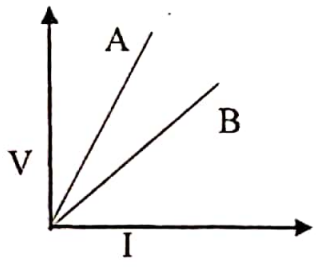
OR

a) Why is it necessary to separate oxygenated and deoxygenated blood in mammals but not in fishes?
b) What will happen if gastric glands are absent?

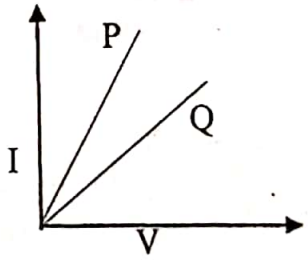
Section - D

27. In the experiment to verify Ohm's Law, a rheostat is used to vary
a) voltage of the cell
b) direction of current
c) resistance of the resistor
d) resistance of the circuit

28. Two students performed experiments on series and parallel combination of resistors and plotted graphs as shown below.



(i)



(ii)

The correct labels for the lines for parallel in (i) and series in (ii) are
a) B and Q
b) A and P
c) B and P
d) A and Q

29. An ammeter has 20 divisions between 0 and 1.0 A on its scale. The least count of the ammeter is

a) 0.02 A
b) 0.2 A
c) 0.01 A
d) 0.05 A

30. Four students studied the reactions of dil HCl and a solution of sodium hydroxide with zinc metal and solid sodium carbonate separately. They reported the possible reaction by (*) and no reaction by (-)

Student	Zn + HCl	HCl+ Na_2CO_3	Zn + NaOH	NaOH +Na_2CO_3
A	*	*	*	*
B	-	-	*	*
C	*	*	-	-
D	*	*	*	-

The correct set of observations is that of student:

a) A
b) B
c) C
d) D

31. On heating ferrous sulphate crystals one would get

a) Brown gas with no smell
b) Irritating choking smell
c) Rotten egg smell
d) Colourless gas which burns with no smell

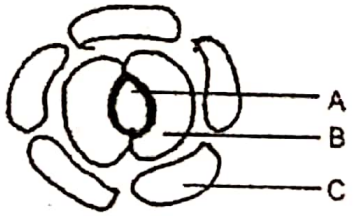
32. To show that zinc is more active than copper, the correct procedure is to :

a) add dilute nitric acid on strips of both the metals
b) observe transmission of heat through strips of zinc and copper
c) prepare solution of zinc sulphate and hang strip of copper into it
d) prepare solution of copper sulphate and hang strip of zinc into it

33. Precautions to be taken by students while preparing a temporary mount of a leaf peel to show its stomata is/are

a) the slide should not be dirty
b) peel should be taken from freshly plucked leaf
c) leaf peel should not be over stained
d) all of these

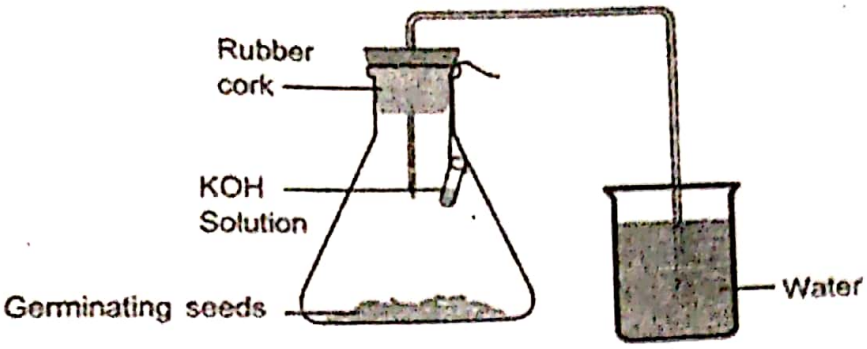
34. In order to complete the diagram of stomatal apparatus given below, nuclei should be drawn in the parts marked.



a) A and B
b) A and C
c) B and C
d) A, B and C

1/20
0.05
250.10

35. In the experimental set-up shown below, KOH solution has been kept in the flask to :



a) React with water to generate oxygen.
b) Create a dry atmosphere for wet germinating seeds.
c) Absorb carbon dioxide so as to create a partial vacuum.
d) Remove impurities present in the air in the flask the set-up is airtight

36. Which of the following precautions are to be taken for a successful run of the experiment to show that carbon dioxide is given out during respiration?

i. Cork should be airtight.
ii. Seeds in the flask should be moist.
iii. A small tube with freshly prepared KOH solution should be placed in the flask.
iv. The end of the delivery tube should be above water level.

The correct answer is:

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

****