D.A.V. PUBLIC SCHOOLS

BIHAR ZONE

Mid Term Examination – 2019 – 2020

Class – IX

Time – 3 Hrs.   Subject – SCIENCE   F.M. –

General Instructions:

1. There are a total of 36 questions in the question paper consisting of 2 sections. All questions are compulsory.

2. Section A contains 10 Multiple choice questions and 10 Very short answer questions each carrying 1 mark.

3. Section B contains 10 questions of 3 marks each and 6 questions of 5 marks each.

4. There is no overall choice, however internal choice is provided in 3 questions of 1 mark 6 questions of 3 marks, and 3 question of 5 marks. An examine is to attempt any one of the question out of the two given in the question paper with same question number.

Section A

1. The earth attracts a body of mass 1kg kept on its surface with a force of

    (a) 1N

    (b) 9.8N

    (c) 1/9.8 N

    (d) 6.67×10^{11} N

2. Two bodies A and B of mass 100g and 200g respectively are dropped near the surface of the earth. Let the acceleration of A and B be a_1 and a_2 respectively, then

    (a) $a_1 = a_2$

(b) $a_1 < a_2$

(c) $a_1 > a_2$

(d) none of these

3.   A man is standing on a boat in still water. If he jumps towards the shore the boat will   1

(a) move away from the shore

(b) remain stationary

(c) move towards the shore

(d) will sink

4.   N/kg is not the unit of   1

(a) retardation

(b) acceleration

(c) rate of change of velocity

(d) force

5.   The boiling point of ethane is 88°C. This temperature will be equivalent to   1

(a) 285 K

(b) 288K

(c) 185K

(d) 361K

6.   One of the following does not show Tyndall effect. It is   1

(a) Soap soln.

(b) ink

(c) sugar soln.

(d) starch soln.

7. The cell organelle responsible for biogenesis of lysosome is   1

     (a) chloroplast

     (b) golgi complex

     (c) mitochondria

     (d) ribosome

8. Cells that surrounds stomata in epidermis of leaves are called   1

     (a) Hyper cells

     (b) Osmotic cell

     (c) Guard cell

     (d) Diffused cell

9. The plant cell wall is made up of   1

     (a) cellulose

     (b) lipid

     (c) chitin

     (d) lignin

10. Tissue that forms the lining of alveoli of lungs is   1

     (a) tendon

     (b) squamous epithelium

     (c) lymph

     (d) none

11. At what place on the earth's surface is the weight of a body maximum?   1

12. Give the SI unit of the physical quantity which is determined by the rate of change of

linear momentum.   1

13. How is the gravitational force between the two masses affected if the separation

between them is doubled?   1

OR

What do you mean by acceleration due to gravity?

14. Two bodies A and B of same mass are moving with velocity v and 2v respectively. 1

Compare their

(a) inertia

(b) momentum.

15. Give one example each of emulsion and aerosol. 1

OR

Why there is no rise in temperature of a substance during the change of state

although it is being heated continuously.

16. Why does steam cause more severe burn than boiling water at 100ºC? 1

17. Who coined the term cell? Name one organelle which contains genetic material? 1

18. Name the substance that gives structural strength to the plants. 1

19. Name the modified epidermal cell that helps plant in exchange of gases. 1

20. Why is plasma membrane called a selectively permeable membrane? 1

Section B

21. Calculate the change in momentum when (a) velocity of an object is doubled. (b) mass

of an object is halved. (c) both mass and velocity are increased by three times. 3

OR

Give reasons and mention the law related to these statements.

(a) It is easier to push an empty box than to push the box full of books.

(b) It is difficult for a fireman to hold a hose pipe which ejects large amount of water

with high velocity.

22.   (a) Mathematically express acceleration due to gravity in terms of mass of the earth and radius of the earth.

(b) Prove that if the earth attracts two bodies placed at the same distance from the center of the earth with equal force, then their masses will be equal.   3

23.   Derive second equation of motion graphically.   3

OR

Derive First Law of Motion mathematically from the mathematical expression for the Second Law of Motion.

24.   Give reasons for the following: 1½×2=3

(a) Water kept in earthen pot becomes cold during summer.

(b) A gas exerts pressure on the walls of the container.

OR

(a) Burning of candle is considered to show both physical & chemical change. Justify.

(b) What do you mean by the statement – "the solubility of $CuSO_4$ in water at 20°C is 20.7gm."?

25.   When zinc metal reacts with dil. HCl, a gas is evolved.   1×3=3

(a) Identify the gas

(b) How is this gas identified?

(c) Which type of chemical reaction takes place here?

OR

When iron nails are dipped in blue colour copper sulphate solution, the colour and new substance X & Y are formed.

(a) Which type of chemical reaction takes place?

(b) What is the colour of the new substance formed?

(c) Name X & Y.

26.   How will you separate a mixture of sand, sodium chloride & ammonium chloride?   3

27.   Name a cell organelle called 'semi – autonomous'. What is its role in the cell?   3

28.   How do Biotic and Abiotic factor effects the crop production?   3

OR

Name the bee variety used for commercial honey production? List the characteristics of bee varieties

suitable for honey production.

29.   Why are Xylem and Phloem called complex tissue? How are they different from one another? Give

two points.   3

30.   Name the stain used in preparing a temporary mount of cheek cell. Write two

features of such a cell observed.   3

31.   (a) Differentiate between homogeneous & heterogeneous mixture with one

example each.

(b) A solution contains 30gm. of sugar dissolved in 370 gm. of water. Calculate the

concentration of the solution.   3+2=5

OR

(a) Differentiate between true solution, colloid and suspension on the basis of

(i) Tyndall effect

(ii) Size of solute particles

(b) What is chromatography? Write its two applications.

32.   Give reasons: 1x5=5

(a) Napthalene balls kept in stored clothes disappear over a period of time.

(b) We are able to sip hot tea faster from a saucer rather than cup.

(c) We feel cold on putting some perfume or acetone on our palm.

(d) Water is a liquid at room temperature.

(e) Gaseous diffuse as burst of rate as compared to liquid and solid.

P.T.O.

33. (a) Describe that uniform circular motion is an accelerated form of motion. 5

(b) An athlete completes one round of a circular track of diameter 200m in 40s. What will be

(i) the distance covered

(ii) the displacement at the end of 2min 20s.

34. State and prove law of conservation of linear momentum. 5

OR

(a) What is meant by momentum of the body? How can it be measured? Write its SI unit.

(b) A cricket ball of mass 100g moving with a speed of 30m/s is brought to rest by a player in 0.3s.

Find

(i) change in momentum of ball

(ii) the average force applied by the player.

35. What does a neuron look like? Describe its function. 1+2+2=5

OR

What are the differences among the muscular tissue of our limbs, bronchi of lungs and heart? Draw a labeled diagram to show differences among them.

36. What are nucleoid? With the help of a diagram explain the structure of nucleus. 5

OR

Differentiate between Prokaryotic and Eukaryotic cell.

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