D.A.V. PUBLIC/MODEL SCHOOLS, WEST BENGAL ZONE
ANNUAL EXAMINATION
SESSION 2018-19

CLASS: IX **MAXIMUM MARKS: 80**

SUBJECT: SCIENCE **SET A** **TIME: 3 HOURS**

General Instructions:

(i) The question paper comprises of five sections – A, B, C, D and E. You are to attempt all the sections.
(ii) All questions are compulsory.
(iii) Internal choice is given in sections C, D and E.
(iv) Question numbers 1 and 2 in Section-A are one mark questions. They are to be answered in one word or in one sentence.
(v) Question numbers 3 to 5 in Section- B are two marks questions. These are to be answered in about 30 words each.
(vi) Question numbers 6 to 15 in Section-C are three marks questions. These are to be answered in about 50 words each.
(vii) Question numbers 16 to 21 in Section-D are 5 marks questions. These are to be answered in about 70 words each.
(viii) Question numbers 22 to 27 in Section- E are based on practical skills. Each question is a two marks question. These are to be answered in brief.

SECTION A

1 Uniform circular motion is accelerated motion. Why? 1

2. Define solubility. 1

SECTION B

3. What do you mean by the term filtrate? Name two metals which have no insoluble salts. 2

4. State one advantage and one disadvantage of composite fish culture system. 2

5. A farmer found Xanthium and Parthenium growing along with wheat crop in the field. 2
What are such plants called? How do these plants affect the crop field?

SECTION C

6. What is the basic principle behind: 3
(i) Chromatography
(ii) Distillation
(iii) Centrifugation.

7. Differentiate between an element and compound. Give one example of each. 3

OR

Explain how will you separate a mixture of iodine and ammonium chloride.

8. i. What causes wind? 3
ii.Explain any two factors which play a vital role in the formation of soil.

9. How do lysosomes perform the function of defense, digestion and cleansing in the cell? 3

10. Name the tissue that:- 3

i. Contain dividing cells.

ii. Smoothens bone surfaces at joints.

iii. Is found between the skin and muscles.

iv. Is present in the brain.

v. Connect muscle to bone in humans.

vi. Transports food from leaves to other parts of the plant.

11. Explain the nitrogen cycle in nature. 3

OR

Explain the carbon cycle in nature.

12. (a) Name the parameter related to pitch of a sound. Differentiate between high pitch and low pitch sound using suitable diagrams. 3

(b) What does SONAR stand for? On what principle does it work?

13. Draw speed time graph for an object (i) accelerating uniformly (ii) falling freely and (iii) moving with constant velocity 20m/s. 3

OR

A motorbike starting from rest accelerates in straight line at a constant rate of $4m/s^2$ for 8s. How far does it travel during this time?

Draw its velocity- time graph.

14. Can a body have momentum even if its mechanical energy is zero? Explain. 3

Obtain an expression for kinetic energy of a moving object.

15. The power of a motor pump is 2 KW. How much water per minute can the pump raise to a height of 10 m? (given $g = 10\ ms^{-2}$) 3

SECTION D

16. (a)(i)State the law of constant proportion.(ii)Which postulate of Dalton's atomic theory can explain the law of definite proportion? 5

(b)Write the chemical formulae of (i)Ammonium sulphate (ii)potassium nitrate,(iii) magnesium chloride(iv) calcium hydroxide(v)silver nitrate (vi)zinc phosphate.

17. (i)Write the main drawback of Rutherford's model of atom. 5

(ii)Calculate the average atomic mass of chlorine if it exists in two isotopes Cl^{35} (75%) and Cl^{37} (25%).

OR

Composition of the nuclei of three atomic species 'X', 'Y' and 'Z' are given below-

	X	Y	Z
Protons	8	8	9
Neutrons	8	9	9

Give the mass number of X, Y and Z. What is the relation between three species?

18. i. Write two points of difference between Pisces and Aves. 5

ii. Give two examples of Protochordates.

iii. Name the group of plants having hidden reproductive organs.

iv. How are Monera different from Protista?

19. i. Prevention is better than cure. Justify giving three reasons. 5

ii. Making antiviral medicines is harder than making antibacterial medicines. Why?

OR

i. How does penicillin act on disease causing organisms?

ii. Differentiate between acute and chronic diseases.

iii. How can we prevent exposure to air borne infections?

20. (a) The volume of 50g of a substance is $20cm^3$. The density of water is $1g/cm^3$. Find weight of object in (i) air and (ii) water. Will it float or sink in water? Justify your answer. 5

(b) How do the mass and weight change when taken form pole to equator? Justify your answer.

21. (a) Although action and reaction are equal and opposite, they do not cancel each other. Why? 5

(b) State Newton's second law of motion and prove F = ma, where symbols are usual in meaning.

(c) An object of mass 100g is accelerated from 5m/s to 8m/s in 6s.

Calculate initial momentum, final momentum and force exerted on the object to bring this change.

SECTION E

22. Name a compound formed by heating iron filling with sulphur. What is its colour? What happens when dilute HCl is added to this compound? 2

OR

Write the steps to verify the law of conservation of mass.

23. What type of solution is obtained when i) sand and water is mixed and ii) starch and water is mixed? Explain. 2

24. Give reasons for the following:- 2

i. Glycerine is added to the cheek cell before mounting.

ii. Safranin is added to the onion peel for slide preparation.

25. What is the shape of:- 2

i. Smooth muscle cell?

ii. Heart muscle cell?

26 What type of wave is produced in a metallic slinky(long helical spring) when one of its end is tied to a rigid support, and the free end, 2

(i) Is compressed and released along its length?

(ii) Is jerked vertically up and down?

Draw suitable diagrams to show the wave formed.

27 While determining the density of the material of a sphere, using spring balance and a measuring cylinder, a student recorded the following observations: (i) mass of sphere=81g (ii) reading of water level in cylinder without sphere = 54mL and (iii) reading of water level in cylinder with sphere = 63mL. 2

On the basis of these observations, find the density of the material of sphere.

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