

DELHI PUBLIC SCHOOL KARNAL  
ANNUAL EXAMINATION  
SESSION: 2019-20

CLASS: IX  
SUBJECT: SCIENCE

NAME: Veronica  
ROLL NO: 23

TIME ALLOWED: 3 hrs.  
MM: 80  
DATE: 14/2/2020

SET - A

**General Instructions:**

1. The question paper comprises three sections-A, B and C. Attempt all the sections.
2. All questions are compulsory.
3. All questions in Section A are one- mark questions comprising MCQ, VSA and assertion – reason type questions. They are to be answered in one word or in one sentence.
4. All questions in Section B are three – mark, short answer type questions. These are to be answered in about 50 – 60 words each.
5. All questions in Section C are five – mark, long answer type questions. These are to be answered in about 80-90 words each.
6. This question paper consists of a total of 30 questions.

**SECTION A**

- Q1. A particle is moving in a circular path of radius  $r$ . The displacement after half a circle would be [1]  
a) zero      b)  $2r$       c)  $\pi r$       d)  $2\pi r$  [1]
- Q2. Write one difference between suspension and colloid.
- Q3. Answer Q. No 3(a) to 3(d) on the basis of your understanding of the following paragraph and the related studied concepts.
- Aarushi and her father boarded Mumbai bound Rajdhani express train at New Delhi. The train was standing at platform 2. Another express train was standing on the neighbouring track. Aarushi was looking towards the second train. Suddenly, she felt that her train is moving. When she looked towards the platform, she found that her train is stationary. She got confused and asked his father about it. Her father explained the cause of her observation.
- a) If Rajdhani express starts from new Delhi station at 04:30 pm and reaches Mumbai central station at 08:30 am next day, travelling a distance of 1380 km, find the average speed of the train. [1]
- b) What is average speed. [1]
- c) What was the cause of Aarushi's observation? [1]
- d) Convert 36 km/h to m/s. [1]
- Q4. The force of attraction between two unit point masses separated by unit distance is called [1]  
a) gravitational attraction      b) universal gravitational constant [1]  
c) acceleration due to gravity      d) centripetal [1]
- Q5. The relative density of a metal alloy is 5.6. Its density in S.I units will be [1]  
a)  $5.6 \text{ Kg/m}^3$       b)  $1005.6 \text{ Kg/m}^3$       c)  $5600 \text{ Kg/m}^3$       d)  $5.6 \times 10^{-3} \text{ Kg/m}^3$
- Q6.  $-273^\circ\text{C}$  temperature is equal to- [1]  
(a) 0 K      b) 273 K      c) -100K      d) 200 K

$\frac{1380}{24} = 57.5$   
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Q7, Q8



Q7. The formula unit mass of  $Al_2O_3$  is -

- a) 100u
- b) 322u
- c) 102u
- d) 294u

In the following questions (Q. 8 & Q.9) the assertion and reason have been put forward. Read the statements carefully and choose the correct alternative.

Q8. **Assertion:** Conversion of liquid to vapour is called sublimation.

**Reason:** On heating liquids, their molecules gain kinetic energy so they change into vapour.

- a) Both the assertion and reason are correct and the reason is the correct explanation of the Assertion.
- b) The assertion and reason are correct but the reason is not the correct explanation of the Assertion.
- c) Assertion is true but the reason is false.
- d) The statement of the Assertion is false but the Reason is true.

Q9 **Assertion:** The first law of motion is also known as law of inertia

**Reason:** An object can itself change its state of rest due to inertia.

- a) Both the assertion and reason are correct and the reason is the correct explanation of the Assertion.
- b) The assertion and reason are correct but the reason is not the correct explanation of the Assertion.
- c) Assertion is true but the reason is false.
- d) The statement of the Assertion is false but the Reason is true.

Q10. An element 'X' has valency 3. Write the formula of its halides.

Q11. Name three isotopes of hydrogen.

Q12. Pooja was suffering from malaria. She was unable to attend the school for 1 week.

[1+]

- a) Name the causative organism of the disease.
- b) Name a vector of disease.
- c) Write two preventive measures to control the disease.

Q13. The cell wall of plant cell is made up of

- (a) chitin
- (b) cellulose
- (c) hemicellulose
- (d) pectin

Q14. Name two egg laying mammals.

### SECTION B

Q15. Draw the velocity-time graph for the following cases and justify your graphs.

Q15, Q16, Q17

- (i) An object is moving with constant velocity (20 m/s)
- (ii) A ball thrown vertically upwards and returning to the hand of thrower.
- (iii) An object decelerating to a constant speed and then accelerating

Q16. A bullet of mass 10g, moving with a velocity  $400ms^{-1}$ , gets embedded in a freely suspended wooden block of mass 900g. What is the velocity acquired by the block

Q17. a) Why does a sheet of paper fall slower than one that is crumpled into a ball?

b) A ball is thrown vertically upward with an initial velocity of 30 m/s. taking  $g = 10 m/s^2$ , find the maximum height reached by the ball. What is the total distance covered by the ball before it reaches the ground.

[1+

Q17, Q18

- Q18. a) Why did Rutherford select a Gold foil in his alpha-particle scattering experiment? [1+2]  
 b) What conclusions were drawn on the basis of his experiment?
- Q19. Name the different types of plastids. Give one function of each type. [3]
- Q20. Name the three types of meristematic tissues depending upon their location and state one function of each. [3]
- Q21. What are two general classes of angiosperms? Give two main differences between them. [3]
- Q22. Give any three differences between cryptogams and phanerogams. [3]
- Q23. The following data represents the distribution of protons and neutrons in atoms of four elements A, B, C, D. Read the table and answer the following questions: [3]

Elements	Protons	Neutrons
A	19	21
B	17	18
C	17	20
D	18	22

- a) Describe the electronic distribution in atom of element B and its valency.  
 b) Which two elements form a pair of Isotopes? Why?  
 c) Which two elements form a pair of Isobars? Why?
- Q24. a) Identify and explain the factor responsible for changed rate of evaporation in the following situations: [3]  
 i) While putting clothes for drying, we spread them out.  
 ii) Water coolers are not effective on a rainy day.  
 b)  $\text{CO}_2$  is a gas. Write its two gaseous properties to justify it.

### SECTION C

- Q25. (i) Define Potential Energy. [5]  
 (ii) Give an example of a body having potential energy due to change of (a) shape and (b) position.  
 (iii) A body of mass 2kg is thrown up with a speed of 25m/s. Find its maximum potential energy.  
 $[g=10\text{m/s}^2]$
- Q26. (i) Name two factors on which the speed of sound in a medium depends. [5]  
 (ii) What do you mean by intensity of sound?  
 (iii) A wave is producing 1500 sound waves in 3 sec. If the distance covered by a compression and an adjacent rarefaction be 68cm, find frequency, wave length and velocity of sound wave.
- Q27. a) Write the formula of following compounds by exchanging their valencies. [2+2+1]  
 (i) Magnesium hydroxide (ii) Calcium Phosphate  
 b) i) Find the number of moles in 87g of  $\text{K}_2\text{SO}_4$ . (Atomic mass of K=39u, S=32, O=16u)  
 ii) Which of the following has more number of atoms?  
 100 g of  $\text{N}_2$  or 100 g of  $\text{NH}_3$   
 c) State the Law of Conservation of mass

- Q28. a) Write any two differences between simple distillation and fractional distillation.  
b) Name the technique and principle of each technique that is used for the following:  
i) to separate drugs from blood  
ii) to separate Butter from curd  
c) What is chemical change? Give one example.

[2+2+1]

- Q29. a) What is wind?  
b) Explain Oxygen cycle in nature.

[5]

- Q30. a) Which two factors bring about loss of food grains during storage? Give one example of each.  
b) State any two control measures to be taken before grains are stored.

[5]

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