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## SAMPLE PAPER

TIME:- 3 Hrs.

SUBJECT- SCIENCE (CLASS-IX)

M.M.:- 80

### [SECTION-A]

- Q.1. What are micronutrients? Give one example. (1)
- Q.2. Name any two non renewable resources. (1)
- Q.3. What is the role of fungi in nitrogen cycle? (2)
- Q.4. (a) Why do you think it is necessary for you to fasten your seat belts while travelling in your vehicle? (2)
- b) How does a karate player break a slab of ice with a single blow?
- Q.5. Write four difference between mass and weight. (2)
- Q.6. a) Compare between parenchyma and collenchyma tissues in atleast two points. (3)
- b) Name the muscle found in our intestine.
- Q.7. a) Define osmosis. (3)
- b) What will happen to raisin when it is kept in hypotonic solution for some time? Explain.
- Q.8. a) State any two advantages of fertilisers over manures. (3)
- b) Why legume crop does not require nitrogenous fertilisers?
- Q.9. Derive velocity –time relation graphically. (3)
- OR**
- A car accelerates uniformly from 20km/h to 35 km/h in 5s. Calculate the acceleration and the distance covered by the car in that time?
- Q.10. State law of conservation of momentum. From a rifle of mass 4 kg a bullet of mass 50g is fired with an initial velocity of 35m/s. Calculate the initial recoil velocity of the rifle. (3)
- Q.11. Give reason for the following:- (3)
- a) Thermometer reading remains constant for a while during melting of a solid even though we continue to heat the solid.
- b) We are able to sip hot tea faster from a saucer rather than a cup.
- c) Gases are compressible but not liquids. Why?
- Q.12. a) On heating calcium carbonate, it gets converted into calcium oxide and carbon di oxide. Is this a physical or chemical change? (3)
- b) Suggest a separation technique to separate a mixture of potassium chloride and ammonium chloride.
- c) What would you observe when a saturated solution of potassium chloride prepared at 60<sup>0</sup>c is allowed to cool to room temperature?
- Q.13. Which contains more molecules, 4g of methane (CH<sub>4</sub>) or 4g of O<sub>2</sub>? (3)
- Q.14. State Archimedes principle and write its two applications. (3)
- Q.15. The AC in your car was not working properly for last couple of days. You took the car to nearby garage and asked the mechanic to refill the refrigerant. After checking the mechanic advised you to repair the leak in the AC. You were in a

hurry and hence decided to postpone the repairing part and asked the mechanic to refill the refrigerant only. However, you father did not agree to refill the refrigerant in a leaked system.

- a) What value is shown by your father?
- b) How can you and your family help in protecting the ozone layer?
- c) What is the importance of ozone layer in the atmosphere?

Q.16. State and prove law of conservation of energy for freely falling body. (5)

Q.17. What is an Echo? State two conditions for echo to be heard. How bats use ultrasound to catch their prey. (5)

A submarine emits a sonar pulse, which returns from an underwater cliff in 1.02 sec. If the speed of pulse is 1531 m/s, how far is the cliff?

Q.18. a) How is acute disease different from chronic disease? (5)

b) A person is suffering from some illness. He is reported pain and fever in abdomen, dark yellow urine, yellowness in eyes and skin.

- i) Name the disease the person is suffering from.
- ii) Suggest any two preventions against the disease.
- iii) How does this disease spread?

Q.19. a) Name the phylum to which the following organisms belong- (2+1+2) (5)

- i) Starfish ii) Sea horse iii) Lobster iv) Jelly fish

b) Give one example of animal showing-

- i) radial symmetry ii) bilateral symmetry

c) Why are bats not placed in birds?

Q.20. a) An element A forms an oxide  $A_2O_5$ , what is the valency of element A? (5)

b) Calculate the formula mass of sodium carbonate.

c) Write an activity which will verify the law of conservation of mass.

Q.21. a) Who discovered electron?

b) Describe Bohr's model of the atom. How did he explain the stability of atom?

c) An element has an atomic number of 11 and its mass number is 23. What is the arrangement of electrons in the shells? State nuclear composition of an atom of the element.

**OR**

a) A sample of an element X contains two isotopes  $^{16}X$  and  $^{18}X$ . If the average atomic mass of this sample of the element be 16.2u. Calculate the percentage of the two isotopes in this sample.

b) The composition of two atomic particles is given below.

	X	Y
Protons	8	8
Neutrons	8	9
Electrons	8	8

- (i) What is the mass number of x and y?  
(ii) What is the relation between x and y?

**SECTION-B**

- Q.22. Draw a nerve cell and label various parts of it. (2)
- Q.23. How will you differentiate between a monocot and a dicot plant? Write any two points. (2)
- Q.24. While determining the density of the material of a sphere using a spring balance and a measuring cylinder, a student noted the following readings. (2)
- i) Mass of a sphere=81g  
ii) Reading of water level in the cylinder without the sphere in it= 54 ml  
iii) Reading of water level in the cylinder with the sphere in it=63 ml  
On the basis of these observations, calculate the density of the material of sphere in  $\text{g/cm}^3$ .
- Q.25. A student, while verifying the laws of reflection of sound, measured the angle between the incident sound waves and reflected sound as  $54^\circ$ . Calculate the angle of reflection. (2)
- Q.26. When Zinc metal reacts with dil  $\text{H}_2\text{SO}_4$ , a gas is evolved which one is a correct statement about the nature of this gas? (2)
- a) Colourless with suffocating smell  
b) Reddish brown and odourless  
c) Colourless and sweet smelling  
d) Colourless and odourless

Which type of reaction is observed in above situation?

- Q.27. A group of students took a sample of milk in a beaker and passed beam of light through it. They were amazed to see that milk taken in the beaker was illuminated. They tried the same activity by taking salt solution but found that the light simply pass through it. (2)
- a) Name the phenomenon involved  
b) Why the same results were not observed with salt solution?

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