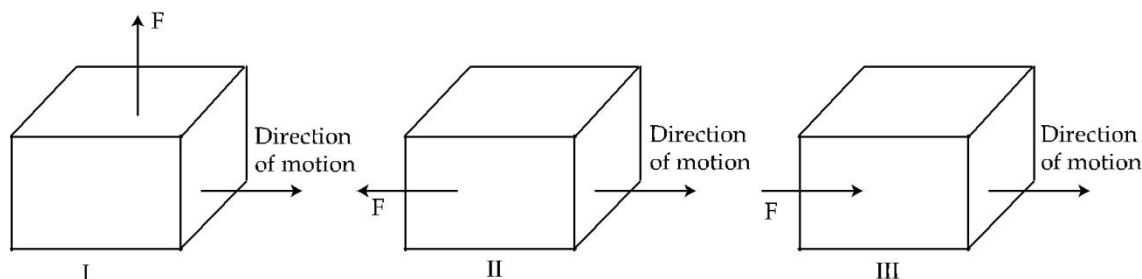# Class – IX SCIENCE Sample paper

SECTION - A

1. If the heart works 60 joules in one minute, what is its power ? 1

2. Name the term used for the sum of kinetic energy and potential energy of a body. 1

3. Which part of the solar radiation is absorbed by ozone layer ? 1

4. What are the constituents of soil ? 1

5. (i) Sound is produced when your school bell is struck with a hammer. Why ? 2

(ii) Which characteristic of sound helps to identify your friend by his voice while sitting with others in a dark room ?

6. (i) Define polyatomic ions and give an example. (ii) Write the chemical formula of Zinc nitrate. 2

7. How can we say that sea horse is a fish while jelly fish is not a fish but a coelenterate ? 2

8. (i) Which group of plants is known as 'flowering plants' ? 2

(ii) On the basis of seed how a maize plant is different from a pea plant ?

9. A sealed can of mass 600 g has a volume of 500 cm3. Will this can sink or float in water ? [Density of water is 1g /cm3] Why ?

10. The number of electrons in the outermost 'L' shell of an atom is

(a) Write its electronic configuration. (b) What is its valency and why ?

11. Why is atmosphere essential for life ? Write two points in support of your answer. 2

12. (i) Why does a block of plastic released under water come up to the surface of water ?

(ii) Name different forces acting on the plastic block when immersed in water.

13. Name the two gases given out by burning of fossil fuels which dissolve in rain water to form acid rain.

14. Calculate number of atoms in 120 g of calcium and 120 g of iron. Which one has more number of atoms and how much is the difference ?   (given atomic mass of calcium 5 40 u and iron 5 56 u)

15. (i) What are vertebrates ? (ii)   Name four sub groups of vertebrates.

16. "In our country majority of children are already immune to hepatitis A without giving its vaccine to them." Justify this statement giving three reasons.

17. (i) What is an echo ? State two conditions for echo to be heard. (ii) Bats can not see still they catch their prey. Explain.

18.(i) Why are ceilings of concert halls curved ? (ii) A person has a hearing range of 20 Hz to 20 kHz. What are the wave lengths of sound waves in air corresponding to these frequencies ? (speed of sound wave in air 5 344 m/s2)

19. In each of the following a force F is acting on an object of mass m.   The direction ofdisplacement is from West to East shown by arrows.   Observe the diagram carefully and identify the case in which the work done by the force is (i) negative, (ii) positive (iii) zero.

20.   (i)   Ajit is suffering from Malaria. Which part of his body will be affected ? ii)Name the vector for this disease. (iii)Write any one way to prevent this disease.

21. Discuss any three limitations to deal with the infectious diseases.

22. a)What is meant by the following ? (i) Molar mass (ii) Valency (b) State law of constant proportion.

23.(i) Define kinetic energy of an object. Show that work done by a force on an objectis equal to the change in kinetic energy of the object.   (ii) What is the work to be done to increase velocity of the car from 30 km/hr to 60 km/hr, if the mass of the car is 1500 kg ?

OR   (i)State the law conservation of energy. Show that energy of a freely falling body is conserved.
(ii)Two girls A and B, each of weight 400 N climb up a rope through a height of 8 m. Girl A takes 20 sec. while B takes 50 sec. to accomplish this task. What is the power expanded by each girl ?
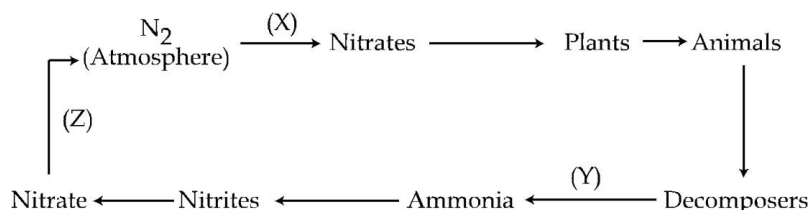
24. (a) State the three observations made by Rutherford on his a particle scattering experiment. (b) Write the number of protons and neutrons of an element whose atomic mass is 27 and atomic number is 13. Write its valency and identify the element.
OR (a) What are Isobars ? Give one example. (b) Write two differences between isobars and isotopes. (c) Write any two applications of isotopes.
25. (i) Illustrate Nitrogen cycle in biosphere.   (ii)Why is Nitrogen cycle said to be a perfect cycle ? Name two leguminous plants which can fix free nitrogen.

OR(i)   How does energy enter the biosphere ? ii) Name one natural and one man made process by which CO_2 returns to atmosphere.
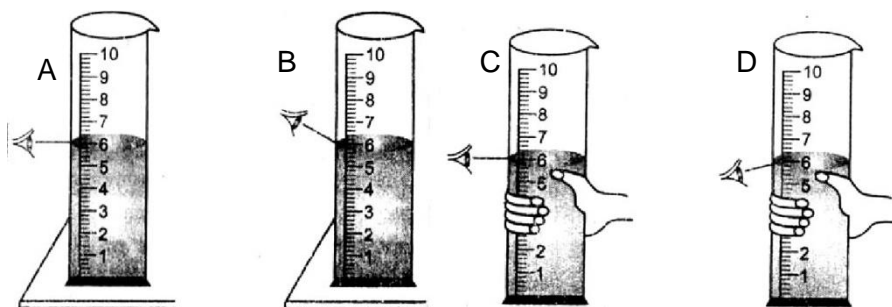
(iii) In the following bio–geochemical cycle, name and define the process marked as (X), (Y), (Z).

SECTION - B

26. A student suspended two iron spheres A and B of same mass using two identical springs of same length. The student immersed sphere A completely in water while sphere B is kept in air. The student found   **1**
    (a)   The increase in length of spring A is more than that of the spring B
    (b)   The increase in length of spring B is more than that of spring A
    (c)   The increase in length of both the springs A and B are equal
    (d)   There is no increase in the length of springs

27. The way of reading the liquid level is shown by four students A, B, C and D while performing an experiment. The correct way is shown by   **1**

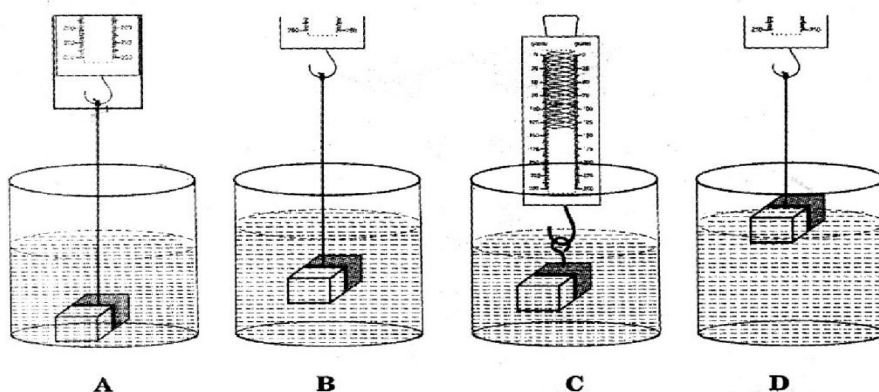   (a)   A   (b)   B   (c)   C   (d)   D

28. While determining the density of an iron piece using a spring balance and a measuring cylinder a student carried out the following steps   **1**
    (A)   Noted the water level in the measuring cylinder without the iron piece
    (B)   Immersed the iron piece in water
    (C)   Noted the water level in the measuring cylinder with the iron piece inside it
    (D)   Removed the iron piece from water and immediately weighed it using a spring balance

    The wrong step followed by the student is
    (a)   step A   (b)   step B   (c)   step C   (d)   step D

29. For determining mass of a solid in water four students A, B, C and D performed the experiment. The experiment set ups are shown below. The correct experiment set up is
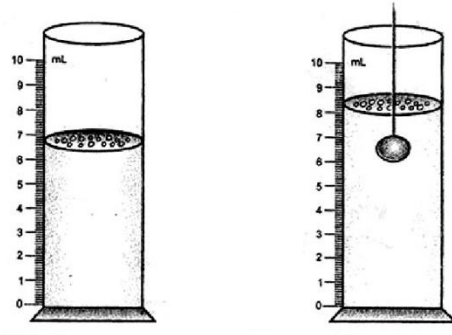
(a)　A　　　　　　　(b)　B　　　　　　　(c)　C　　　　　　　(d)　D

30. While performing an experiment a student measured volume of a solid. The volume of
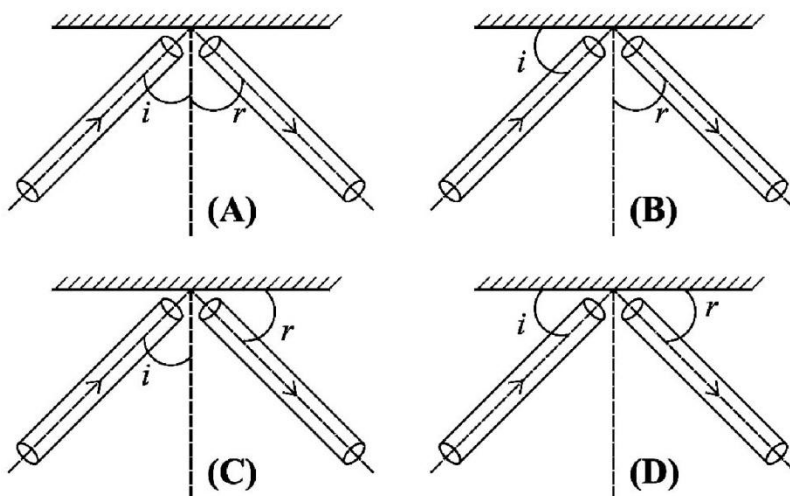solid as measured by the student is

(a)　1.6 mL　　　　(b)　5.9 mL　　　　(c)　8.0 mL　　　　(d)　6.0 mL

1

31. Four students A, B, C and D measured mass of a solid iron cube of side 4 cm using four
spring balances. The accurate reading is of the student using spring balance.
(A)　range 0 to 1000 g and least count 5 25 g
(B)　range 0 to 1000 g and least count 5 10 g
(C)　range 0 to 100 g and least count 5 5 g
(D)　range 0 to 100 g and least count 5 1 g
(a)　A　　　　　　　(b)　B　　　　　　　(c)　C　　　　　　　(d)　D

1

32. Four students A, B, C and D performed an experiment to verify the laws of reflection of
sound and measured angle of incidence ∠ i and angle of reflection ∠ r. Correct
representation of ∠ i and ∠ r shown by the student is

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

1

33.　A student is given the following apparatus which are available in the laboratory

1

(A) A Thermocol sheet   (B) Two hollow glass tubes
(C) A broad source of sound   (D) A pointed and intense source of sound
(E) A polished metal sheet   (F) A detector of sound

The student verified the laws of reflection of sound correctly by using the apparatus labelled as

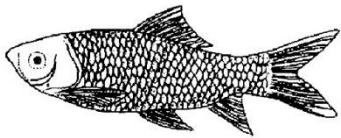(a) A, B, C, F   (b) A, B, D, F   (c) B, D, E, F   (d) A, B, C

34. A student was given that a radio station transmits waves of wavelength 100 m. If speed of radio waves is given as 3310° ms$^{2\prime}$ the frequency of radio wave as determined by the student is   **1**

(a) 3×10^{8} Hz   (b) 3×10^{10} Hz   (c) 3×10^{6} Hz   (d) 3×10^{3} Hz

35. The wavelength of a sound wave was measured by a student as 8 m. The frequency of sound wave is given as 40 Hz. The speed of sound as calculated by the student is   **1**

(a) 40 m/s   (b) 8 m/s   (c) 5 m/s   (d) 320 m/s

36. In the following figures what is the common feature ?   **1**

(a) Presence of fins   (b) Presence of scales

(c) Bulky thorax   (d) Post anal tail

37. The correct position of clitellum in Earthworm is   **1**

(a) 12, 13, 14 segments   (b) 14, 15, 16 segments

(c) 24, 25, 26 segments   (d) 5, 6, 7 segments

38. In which plant gills are present ?   **1**

(a) Spirogyra   (b) Agaricus   (c) Moss   (d) Fern

39. Which of the following statements is incorrect ?   **1**

A cockroach has

(a) A pair of antennae   (b) Three pairs of legs

(c) Body covered by exoskeleton   (d) Body divided into 100 - 120 segments

40. Pneumatic bones are found in   **1**

(a) Whale   (b) Dolfin   (c) Pigeon   (d) Snake

41. In which of the following gametophytic generation is dominant ?   **1**

(a) Moss   (b) Fern   (c) Mustard plant   (d) Pinus