CLASS IX (2019-20)
SCIENCE (CODE 086)
SAMPLE PAPER-9

Time : 3 Hours   **Maximum Marks : 80**

General Instructions :

(i)   The question paper comprises of three sections-A, B and C. Attempt all the sections.
(ii)   All questions are compulsory.
(iii)   Internal choice is given in each sections.
(iv)   All questions in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.
(v)   All questions in Section B are three-mark, short-answer type questions. These are to be answered in about 50-60 words each.
(vi)   All questions in Section C are five-mark, long-answer type questions. These are to be answered in about 80-90 words each.
(vii)   This question paper consists of a total of 30 questions.

SECTION -A

DIRECTION : For question numbers 1 and 2, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d)as given below :

(a) Both A and R are true and R is correct explanation of the assertion.

(b) Both A and R are true but R is not the correct explanation of the assertion.

(c) A is true but R is false.

(d) Both A and R are false.

Q1.   Assertion (A) : If a light body and a heavy body possess the same momentum, the lighter body will possess more kinetic energy.   [1]
        Reason (R) : The kinetic energy of a body varies as the square of its velocity.

Q2.   Assertion (A) : All molecules in a gas travel in same speed.
        Reason (R) : Gas contain molecules of different shape and size.   [1]

Q3.   Nitrogen, hosphorous and otassium are examples of :   [1]
        (a) Macro–nutrients   (b) Fertilizers
        (c) Both (a) and (b)   (d) None of these

Q4.   A rider on a horseback falls back when horse starts running all of a sudden because of :   [1]
        (a) Pressure   (b) Gravitational force
        (c) Inertia   (d) None of the above

OR

        Newton's law of gravitation applies to ....
        (a) Small bodies only   (b) Plants only
        (c) All bodies irrespective of their size   (d) For solar system

Q5.   The components of the water can be separated by :   [1]
        (a) Physical methods   (b) Chemical methods
        (c) Both (a) and (b)   (d) They can't be separated

OR

        Brass is a solution of molten copper in :
        (a) Solid zinc   (b) Molten zinc
        (c) Gaseous zinc   (d) Molten tin

Q6.   Cartilage and bone are the types of :   [1]
       (a) Muscular tissue   (b) Connective tissue
       (c) Meristematic tissue   (d) Epithelial tissue

Q7.   Which of the following pairs are isotopes ?   [1]
       (a) H and O   (b) O and N
       (c) H and deuterium   (d) Ice and steam

Q8.   Where do we found areola connective tissue in our body?   [1]
       (a) Cortex   (b) Skin and Muscles
       (c) Blood Vessel   (d) Muscles

OR

       Ribosomes are the site of :
       (a) Photosynthesis   (b) Respiration
       (c) Protein synthesis   (d) Absorption

Q9.   A stone is dropped into a lake from a tower 500 m high. The sound of the splash will be heard by a man on the tower
       after a time of (velocity of sound in air = 350 m/s)   [1]
       (a) 21 s   (b) 10 s
       (c) 11.4 s   (d) 1 s

Q10.   What does the slope of velocity–time graph give?   [1]
       (a) Acceleration   (b) S peed
       (c) Displacement   (d) Distance

Q11.   What are the characteristics of a sound wave?   [1]

Q12.   Common fungi used in preparing the bread are ....   [1]

Q13.   Questions 13.1 to 13.4 are based on the Table A and B. Study this table and answer the following questions.   [1]

Table A : Thickness of epidermis

Plant	Thickness of epidermis (mm)
A	0.05
B	2.3
C	0.02
D	1.9
E	2.7
F	0.1

Table B : Terrains and thickness of the epidermis of the plants found in that terrain

Terrains	Thickness of epidermis (mm)
Desert	> 2.0
Grasslands	$1.0 > x > 0.5$
Forests	< 0.5

   13.1 Which plants (from Table A) can be found in desert ?   [1]

   13.2 What is the reason they have a thicker epidermis than the plants found in grasslands or forests ? [1]

   13.3 What is the name of the thick waxy coating found on the leaves of the plants found in desert ?   [1]

   13.4 Give one example of a desert plant.   [1]

Q14.   Answer question numbers 14.1 to 14.4 on the basis of your understanding of the following paragraph and the related
       studied concepts.
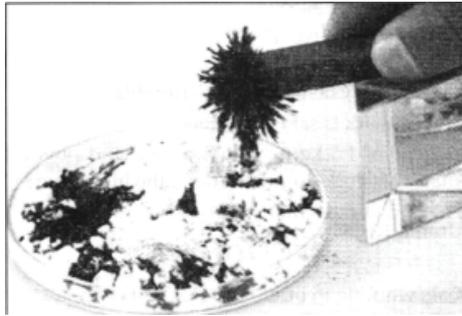
Keith and his friends visit the chemical laboratory in their school to know the difference between elements and compounds. They asked the lab assistant about the same but the assistant did not respond to them directly but instead told them to do an experiment. The lab assistant divided them in two groups, A and B. Both the groups were told to take 5 g of iron filings and 3 g of Sulphur powder in a china dish. Group A has to mix and crush the iron filings and sulphur. Group B has to do the same and then heat the china dish till the mixture becomes red hot and then remove from flame and let it cool. To one part of both the mixtures, they added carbon disulphide and stirred well and filtered. To another part, they added dilute sulphuric acid.

14.1 What gas is obtained by Group A ?   [1]

14.2 What gas is obtained by Group B and how is it identified ?   [1]

14.3 What is the difference between material obtained by Group A and Group B ?   [1]

14.4 Give one property of mixtures.   [1]

SECTION -B

Q15.   Derive the second equation of motion numerically.   [3]

Q16.   (a) How can you show that evaporation causes cooling ?
        (b) What are heterogeneous mixtures ?   [3]

Q17.   (a) How are simple tissues different from complex tissues ?
        (b) What happens to the plants if their tips are removed ?   [3]

Q18.   "According Newton's Third law of motion, For every action force there is an equal and opposite reaction force." Keeping this law in mind, explain how a horse pulls a cart.   [3]

OR

Take two eggs, a raw egg and a hard boiled egg. Try to spin both the eggs with the same force on the same surface. Which one will spin for more time? You can see that the hard boiled egg spins for more time than the raw egg. What made the boiled egg spin for more time? Can you explain?

Q19.   What are the main practices involved in keeping of animals or animal husbandry ?   [3]

Q20.   A student weighs 30 kg. Suppose his body is entirely made up of electrons. How many electrons are there in his/her body. (Mass of an electron is 9.1×10^{-31} Kg)   [3]

OR

        (a) How would you confirm that a colorless liquid given to you is pure water ?
        (b) What is meant by a substance ?

Q21.   A car falls of a ledge and drops to the ground in 0.5s. Let $g = 10 \text{ms}^{-2}$
        (a) What is its speed on touching the ground ?
        (b) What is its average speed during 0.5 s ?
        (c) How high is the ledge from the ground ?   [3]

Q22.   Differentiate between monocot and dicot plants.   [3]

OR

Define (a) Bilateral symmetry, (b) Coelom and (c) Triptoblastic.

Q23.   (a) Under what conditions work is said to be done ?
        (b) A porter lifts a luggage of 1.5 kg from the ground and puts it on his head 1.5 m above the ground. Calculate the work done by him on the luggage.   [3]

Q24.   Which type of plastids help in photosynthesis? Draw its diagram.   [3]

SECTION -C

Q25.   What is SONAR? Write its working in brief.   [5]

OR

        (a) Define frequency and amplitude of a wave.
        (b) Define wavelength and time period of a wave

Q26.   (a) What temperature in Kelvin scale is equal to 50°C ?
        (b) Describe an activity to show that rate of evaporation increases with surface area (with a diagram).   [5]

Q27.   What are the two principles of treatment? Why is making anti-viral medicines harder than making anti-bacterial medicines?   [5]

OR

        Explain how clouds are formed and result in rain.

Q28.   An 8000 kg engine pulls a train of 5 wagons, each of 2000 kg, along a horizontal track. If the engine exerts a force of 40000 N and the track offers a friction force of 5000 N, then calculate: [5]
        (a) The net accelerating force
        (b) The acceleration of the train; and
        (c) The force of wagon 1 on wagon 2.

Q29.   State the following laws with examples.
        (a) Law of conservation of mass.
        (b) Law of constant proportion.   [5]

OR

        What is chromatography? What are its various applications and underline the basic principle involved.

Q30.   (a) Name the group of plants known as "Amphibians of plant world". Mention their four important characteristics.
        (b) Give three points on how birds have adapted themselves to an aerial mode of life.
        (c) Draw a labeled diagram of a bacteria.   [5]