GUJARAT BOARD CLASS 9 TERM 1
SCIENCE SAMPLE PAPER- SET 2

Time: 2 hrs   **Total Marks: 60**

General Instructions:

PART A

- In MCQs, internal options will not be given.
- 30 MCQs will be asked in this part of the paper. Each carries **1 Mark**. All these questions are compulsory.

PART B

- Internal options will be asked from the same chapter with equal difficulty level.
- **Section A:** →Question no. 1 to 5 are to be answered in short. Each carries 2 marks.
                  →Internal option will be available in two questions.
- **Section B:** →Question no. 6 to 9 are to be answered in brief. Each carries 3 marks.
                  →Internal option will be available in one question.
- **Section C:** →Question no. 10 to 11 are to be answered in detail. Each carries 4 marks.
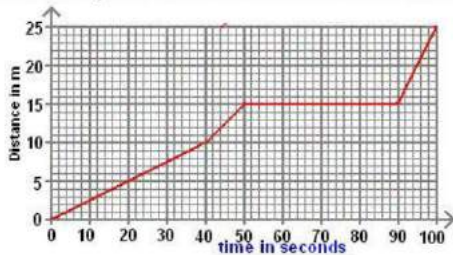   →Internal option will be available in one question.

PART A

Choose the correct option from the given choices for each of the following questions:
[1 mark each]   **[30]**

1. The value of 'g' is minimum:
   (a) At the poles
   (b) At the equator
   (c) On hills
   (d) In mines

2.

What is the speed of the object in the 10 second interval from 40-50 seconds?

(a) 2 m/s
(b) 0.5 m/s
(c) 1 m/s
(d) 25 m/s

3. The mass of a body on the Earth is 60 kg, its mass on the Moon is:
   (a) 10 kg
   (b) 60 kg
   (c) 120 kg
   (d) zero

4. A plastic mug full of water appears lighter inside water due:
   (a) Gravitational force
   (b) Pressure
   (c) Newton's law
   (d) Buoyant force

5. While dusting a carpet we beat it with a stick because:
   (a) Inertia of motion removes the dust
   (b) Inertia of rest keeps the dust in its position
   (c) Inertia of mass removes the dust
   (d) Force is applied on the carpet

6. Which of the following is incorrect about action and reaction forces?
   (a) They are equal
   (b) They are opposite
   (c) They act on the same object
   (d) They act on different objects

7. A gun of mass 5 kg fires a 50 g bullet with a velocity of 200 m/ s. the recoil velocity of the gun is:
   (a) −2 m/ s
   (b) 20 m/ s
   (c) 0.2 m/ s
   (d) Zero

8. The velocity of a body of mass 15 kg increases from 5 m/ s to 10 m/ s when a force acts on it for 2 s. What is the gain in momentum per second?
   (a) 150 kg.m/ s
   (b) 100 kg.m/ s
   (c) 75 kg.m/ s
   (d) 50 kg.m/ s

9. A body weighs 48 N on the surface of the Earth, its weight at the centre of the earth is:
   (a) 24 N
   (b) 48 N
   (c) 96 N
   (d) Zero

10. A scooter generally slips on an oily road because:
    (a) Friction between the tyres and the road increases
    (b) Friction between the tyres and the road decreases
    (c) Friction between the tyres and the road remains same
    (d) All of the above

11. An object travels 20 m in 5 sec and then another 40 m in 5 sec. What is the average speed of the object?
    (a) 12 m/ s
    (b) 2 m/ s
    (c) 6 m/ s
    (d) 0 m/ s

12. The part of an atom where nearly the entire mass of an atom is concentrated is the:
    (a) Neutron
    (b) Nucleus
    (c) Quark
    (d) Proton

13. Which of the following atoms have the electronic configuration 2, 8, 3?
    (a) Mg
    (b) Br
    (c) Mo
    (d) Al

14. What do you understand by the term concentrated solution?
    (a) Solution with high solute concentration.
    (b) Solution with low solute concentration.
    (c) Solution containing no solute.
    (d) Solution in which no more solute can be dissolved.

15. A sugar solution is an example of:
    (a) An element
    (b) A compound
    (c) A mixture
    (d) All of the above

16. Which of the following will show Tyndall effect?
    (a) Clouds
    (b) Fog
    (c) Sugar solution
    (d) Both Clouds and Fog

17. Why does a gas exert pressure on the walls of a container?
    (a) Because particles of gas are static.
    (b) Because particles of gas hit the walls of container.
    (c) Because particles of gas react with each other.
    (d) None of the above.

18. The positive charge on the nucleus is due to the:
    (a) Presence of electrons in it.
    (b) Presence of protons in it.
    (c) Presence of neutrons in it.
    (d) Presence of alpha particles in it.

19. Rough endoplasmic reticulum looks rough under a microscope because of
    (a) Ribosomes
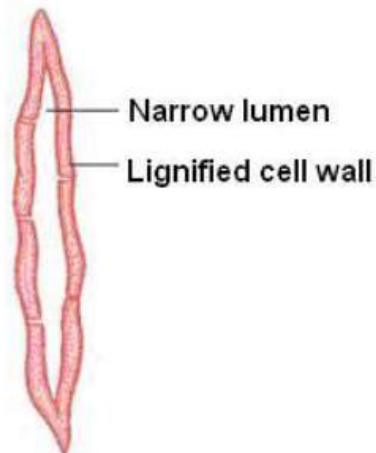   (b) Branching
    (c) Depressions
    (d) Lysosomes

20. Nucleoid is a feature of
    (a) Amoeba
    (b) Bacteria
    (c) Humans
    (d) Birds

21. Which biologist proposed the cell theory along with Schwann?
    (a) Virchow
    (b) Robert Brown
    (c) Schleiden
    (d) Purkinje

22. Which type of plant tissue is depicted below?

    (a) Sclerenchyma
    (b) Aerenchyma
    (c) Collenchyma
    (d) Chlorenchyma

23. Which of the following factors can be used to distinguish between sclerenchyma and parenchyma cells under a microscope?
    (a) Thickness of the cell wall
    (b) Nucleus location
    (c) Cell size
    (d) Size of vacuole

24. What does vascular bundle consist of?
    (a) Xylem and Parenchyma
    (b) Xylem and Phloem
    (c) Epidermis and Cork
    (d) Epidermis and Meristem

25. Identify the voluntary muscle:
    (a) Finger muscles
    (b) Muscles of intestine
    (c) Muscles in bronchi of lungs
    (d) Heart muscles

26. Which feature differentiates cardiac muscles from smooth muscles?
    (a) Uninucleate cells
    (b) Presence of striations
    (c) Do not get tired easily
    (d) Involuntary

27. Which two parts of a neuron arise from the cyton?
    (a) Axon and dendrites
    (b) Dendrites and cell body
    (c) Axon and nerve ending
    (d) Synapse and axon

28. Why is the body of an AIDS patient unable to fight off even minor infections like common cold?
(a) The body is busy fighting off the attack of the HIV virus.
(b) The HIV virus damages the function of the immune system
(c) The AIDS patient is not allowed to take any medication
(d) The HIV virus is also capable of causing other minor infections

29. Tuberculosis is spread by:
(a) Mosquito bite
(b) Sputum of infected person
(c) Deep wounds
(d) Water

30. What would happen if no agency ensures the collection and disposal of garbage?
(a) The garbage will begin decomposing faster.
(b) People will stop producing garbage.
(c) Surroundings will become unhygienic creating many health-related problems for people
(d) No change will be seen in the surroundings

PART B
Section A

Answer the following questions in short: **[10]**
[2 marks each]

1. Explain giving reasons: Radioactive elements emit radiations. [2]

2. Draw a neat and labeled diagram of mitochondria. [2]

3. Draw a diagram of collenchyma tissue and label any four parts. [2]

4. Two balls are thrown vertically upwards with their initial speeds in the ratio 1: 2. Find the ratio of their maximum heights. [2]

OR

State which of the following situations are possible and give an example for each of these:
(a) An object with a constant acceleration but with zero velocity
(b) An object moving in a certain direction with acceleration in the perpendicular direction.

5. What are saturated and unsaturated solutions? [2]

OR

Some quantity of dichlorine contains 8.033×10^{23} molecules. Calculate the moles of dichlorine and its weight in grams.

Section B

Answer the following questions in short: [12]
[3 marks each]

6. A 8000 kg engine pulls a train of 5 wagons, each of 2000 kg, along a horizontal track. If the engine exerts a force of 40,000 N and the track offers a frictional force of 5,000 N, then calculate :
(a) The net accelerating force.
(b) The acceleration of the train.
(c) The force of wagon 1 on wagon 2. [3]

7. Describe the plant plastid, which is capable of carrying out photosynthesis.
(with diagram) [3]

8. Discuss the structure of a neuron. (Diagram needed) [3]

OR

Give the location and functions of the following tissues:
(a) Cartilage
(b) Areolar tissue
(c) Adipose tissue

9. [3]
(a) Name the causative organism for cholera.
(b) How does cholera spread through water?

OR

(a) Why is mosquito a vector of malaria and not a carrier?
(b) Give the mode of transmission for malaria.

Section C

Answer the following questions in detail: [8]
[4 marks each]

10. Describe Rutherford's scattering experiment and observations made by him. [4]

11. An object starts linear motion with a velocity 'u', and under uniform acceleration 'a' it acquires a velocity 'v' in time 't'. Draw its velocity time graph. From this graph obtain the following equations. [4]
    a. $v = u + at$
    b. $s = ut + \frac{1}{2} at^2$

OR

A stone is allowed to fall from the top of a tower 100 m high and at the same time another stone is projected vertically upwards from the ground with a velocity of 25 ms^{-1}. Calculate when and where the two stones will meet? (Take g = 10ms^{-2})