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CLASS 9

Science

Sample Paper 2 - Questions

39 questions | 80 marks | 2026-27

Time: 3 hours. Answer all questions and subparts unless a choice is stated. Marks are shown on the right. Write answers on separate sheets. Independently prepared practice paper.

Section A - Objective questions

1. A body starts from rest with acceleration 2 m/s^2 for 4 s. Calculate its displacement. **1**
(A) 18 (B) 15 (C) 16 (D) 17

2. Select the term described below. A selectively permeable boundary regulates exchange between a cell and its surroundings. **1**
(A) Solution (B) Uniform acceleration (C) Plasma membrane (D) Osmosis

3. Select the term described below. Water moves across a selectively permeable membrane toward the side with lower water potential. **1**
(A) Uniform acceleration (B) Osmosis (C) Plasma membrane (D) Solution

4. A resultant force of 6 N acts on a 2 kg object. Calculate acceleration. **1**
(A) 5 (B) 3 (C) 4 (D) 2

5. Select the term described below. This organelle supports aerobic respiration and ATP production in eukaryotic cells. **1**
(A) Plasma membrane (B) Solution (C) Uniform acceleration (D) Mitochondrion

6. Select the term described below. A plant tissue conducts water and dissolved minerals and also contributes mechanical support. **1**
(A) Solution (B) Uniform acceleration (C) Plasma membrane (D) Xylem

7. A 2 kg object moves at 5 m/s. Calculate its kinetic energy. 1
(A) 27 (B) 26 (C) 25 (D) 24

8. Select the term described below. A region of actively dividing plant cells supports growth. 1
(A) Meristem (B) Plasma membrane (C) Uniform acceleration (D) Solution

9. Select the term described below. One parent produces offspring without the fusion of gametes. 1
(A) Uniform acceleration (B) Plasma membrane (C) Asexual reproduction (D) Solution

10. A wave has frequency 20 Hz and wavelength 2 m. Calculate speed. 1
(A) 39 (B) 40 (C) 41 (D) 42

11. Select the term described below. A scientific name combines a genus name and a specific epithet using standard conventions. 1
(A) Binomial nomenclature (B) Plasma membrane (C) Uniform acceleration (D) Solution

12. Select the term described below. A homogeneous mixture has solute particles distributed uniformly in a solvent. 1
(A) Uniform acceleration (B) Plasma membrane (C) Binomial nomenclature (D) Solution

13. A body starts from rest with acceleration 3 m/s^2 for 4 s. Calculate its displacement. 1
(A) 26 (B) 25 (C) 23 (D) 24

14. Select the term described below. Components separate through different interactions with moving and stationary phases. 1
(A) Uniform acceleration (B) Plasma membrane (C) Binomial nomenclature (D) Chromatography

15. Select the term described below. Solute mass divided by total solution mass, multiplied by 100, expresses mass-by-mass concentration. 1
(A) Plasma membrane (B) Uniform acceleration (C) Mass percentage (D) Binomial nomenclature

16. A resultant force of 12 N acts on a 4 kg object. Calculate acceleration. 1
(A) 4 (B) 2 (C) 5 (D) 3

17. Select the term described below. Atoms of the same element have equal proton numbers but different neutron numbers. 1
(A) Isotope (B) Plasma membrane (C) Binomial nomenclature (D) Uniform acceleration

18. Select the term described below. An atom's combining capacity is associated with the electrons involved in bonding. 1
(A) Valency (B) Binomial nomenclature (C) Plasma membrane (D) Uniform acceleration

19. A 4 kg object moves at 5 m/s. Calculate its kinetic energy. 1
(A) 52 (B) 51 (C) 49 (D) 50

20. Select the term described below. Total mass is conserved in a chemical reaction when all matter is accounted for. 1
(A) Conservation of mass (B) Plasma membrane (C) Uniform acceleration (D) Binomial nomenclature

Section B - Short responses

21. Two identical containers hold equal masses of salt solution. A student heats only one. State a testable question about evaporation and one controlled variable. 2

22. A body starts from rest with acceleration 4 m/s^2 for 4 s. Calculate its displacement. 2

23. A resultant force of 18 N acts on a 6 kg object. Calculate acceleration. 2

24. A 6 kg object moves at 5 m/s. Calculate its kinetic energy. 2

25. A wave has frequency 60 Hz and wavelength 2 m. Calculate speed. 2

26. A body starts from rest with acceleration 5 m/s^2 for 4 s. Calculate its displacement. **2**

Section C - Short responses

27. A resultant force of 24 N acts on a 8 kg object. Calculate acceleration. **3**

28. A 8 kg object moves at 5 m/s. Calculate its kinetic energy. **3**

29. A wave has frequency 80 Hz and wavelength 2 m. Calculate speed. **3**

30. A body starts from rest with acceleration 6 m/s^2 for 4 s. Calculate its displacement. **3**

31. A resultant force of 30 N acts on a 10 kg object. Calculate acceleration. **3**

32. A 10 kg object moves at 5 m/s. Calculate its kinetic energy. **3**

33. A wave has frequency 100 Hz and wavelength 2 m. Calculate speed. **3**

Section D - Extended responses

34. Explain how inertia and Newton's first law account for a passenger moving forward when a bus brakes. Give one related safety measure and its purpose. **5**

35. A 2 kg cart initially at rest experiences a constant resultant force of 6 N for 4 s. Calculate its acceleration, final momentum and the impulse received. **5**

36. A machine takes 300 J of input energy and raises a 50 N load through 4 m. Calculate useful output work and efficiency. Explain why efficiency is below 100%. **5**

Section E - Case and application questions

37. Consider the following case: A cell takes in needed substances while controlling the movement of others.

(a) Name the concept demonstrated in the case. 1

(b) Explain how the details of the case support your choice. 1

(c) Explain Xylem with another appropriate example. 2

38. Consider the following case: A raisin swells after soaking in water.

(a) Name the concept demonstrated in the case. 1

(b) Explain how the details of the case support your choice. 1

(c) Explain Meristem with another appropriate example. 2

39. Consider the following case: An actively contracting muscle cell needs a substantial ATP supply.

(a) Name the concept demonstrated in the case. 1

(b) Explain how the details of the case support your choice. 1

(c) Explain Asexual reproduction with another appropriate example. 2

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