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CLASS 9

Science

Sample Paper 1 - 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 11 m/s^2 for 4 s. Calculate its displacement. **1**
(A) 89 (B) 87 (C) 90 (D) 88

2. Which concept best explains the following situation? Nitrogen-fixing microorganisms make some atmospheric nitrogen available to living systems. **1**
(A) Plasma membrane (B) Conservation of mass (C) Nitrogen cycle (D) Binomial nomenclature

3. Which concept best explains the following situation? Sound in air produces alternating compressions and rarefactions. **1**
(A) Longitudinal wave (B) Plasma membrane (C) Binomial nomenclature (D) Conservation of mass

4. A resultant force of 60 N acts on a 20 kg object. Calculate acceleration. **1**
(A) 5 (B) 4 (C) 2 (D) 3

5. Which concept best explains the following situation? Doubling a moving cart's speed quadruples its kinetic energy. **1**
(A) Kinetic energy (B) Conservation of mass (C) Binomial nomenclature (D) Plasma membrane

6. Which concept best explains the following situation? An effort of 40 N supports a load of 120 N in a simple machine. 1
(A) Conservation of mass (B) Mechanical advantage (C) Binomial nomenclature (D) Plasma membrane

7. A 20 kg object moves at 5 m/s. Calculate its kinetic energy. 1
(A) 249 (B) 252 (C) 251 (D) 250

8. Which concept best explains the following situation? At equal velocity, a loaded trolley has greater momentum than an empty one. 1
(A) Binomial nomenclature (B) Conservation of mass (C) Plasma membrane (D) Momentum

9. Which concept best explains the following situation? A passenger tends to continue moving forward when a bus brakes. 1
(A) Conservation of mass (B) Binomial nomenclature (C) Inertia (D) Plasma membrane

10. A wave has frequency 200 Hz and wavelength 2 m. Calculate speed. 1
(A) 400 (B) 399 (C) 401 (D) 402

11. Which concept best explains the following situation? A cart gains 2 metres per second of velocity every second along a straight track. 1
(A) Binomial nomenclature (B) Conservation of mass (C) Uniform acceleration (D) Plasma membrane

12. Which concept best explains the following situation? The total mass of a sealed reaction vessel remains unchanged after reaction. 1
(A) Uniform acceleration (B) Binomial nomenclature (C) Plasma membrane (D) Conservation of mass

13. A body starts from rest with acceleration 12 m/s^2 for 4 s. Calculate its displacement. 1
(A) 98 (B) 96 (C) 95 (D) 97

14. Which concept best explains the following situation? Magnesium commonly forms a 2+ ion by losing two electrons. 1
(A) Binomial nomenclature (B) Plasma membrane (C) Uniform acceleration (D) Valency

15. Which concept best explains the following situation? Chlorine atoms with mass numbers 35 and 37 have the same atomic number. 1
(A) Plasma membrane (B) Binomial nomenclature (C) Isotope (D) Uniform acceleration

16. A resultant force of 66 N acts on a 22 kg object. Calculate acceleration. 1
(A) 2 (B) 4 (C) 5 (D) 3

17. Which concept best explains the following situation? Ten grams of sugar in 90 grams of water forms a ten percent solution by mass. 1
(A) Binomial nomenclature (B) Uniform acceleration (C) Plasma membrane (D) Mass percentage

18. Which concept best explains the following situation? Colours in a water-soluble ink separate as water moves along paper. 1
(A) Chromatography (B) Uniform acceleration (C) Plasma membrane (D) Binomial nomenclature

19. A 22 kg object moves at 5 m/s. Calculate its kinetic energy. 1
(A) 277 (B) 276 (C) 275 (D) 274

20. Which concept best explains the following situation? Salt dissolves uniformly in water without visible settling. 1
(A) Plasma membrane (B) Solution (C) Uniform acceleration (D) Binomial nomenclature

Section B - Short responses

21. A student compares drying times of identical wet cloths in moving and still air. State the variable changed and one condition that should be kept the same. 2

22. A body starts from rest with acceleration 13 m/s^2 for 4 s. Calculate its displacement. 2

23. A resultant force of 72 N acts on a 24 kg object. Calculate acceleration. 2

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

25. A wave has frequency 240 Hz and wavelength 2 m. Calculate speed. 2

26. A body starts from rest with acceleration 14 m/s^2 for 4 s. Calculate its displacement. 2

Section C - Short responses

27. A resultant force of 78 N acts on a 26 kg object. Calculate acceleration. 3

28. A 26 kg object moves at 5 m/s. Calculate its kinetic energy. 3

29. A wave has frequency 260 Hz and wavelength 2 m. Calculate speed. 3

30. A body starts from rest with acceleration 15 m/s^2 for 4 s. Calculate its displacement. 3

31. A resultant force of 84 N acts on a 28 kg object. Calculate acceleration. 3

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

33. A wave has frequency 280 Hz and wavelength 2 m. Calculate speed. 3

Section D - Extended responses

34. (a) Analyse Nitrogen cycle with reference to this application: Nitrogen-fixing microorganisms make some atmospheric nitrogen available to living systems.
(b) Explain Osmosis with a different relevant example. Develop the reasoning behind both parts. 5

35. (a) Analyse Isotope with reference to this application: Chlorine atoms with mass numbers 35 and 37 have the same atomic number.
(b) Explain Conservation of mass with a different relevant example. Develop the reasoning behind both parts. 5

36. (a) Analyse Binomial nomenclature with reference to this application: Homo sapiens has a capitalised genus and a lowercase specific epithet. (b) Explain Chromatography with a different relevant example. Develop the reasoning behind both parts. **5**

Section E - Case and application questions

37. Consider the application below: Nitrogen-fixing microorganisms make some atmospheric nitrogen available to living systems.

(a) Name the relevant concept. **1**

(b) Explain why it applies. **1**

(c) Explain Plasma membrane with a suitable example. **2**

38. Consider the application below: Sound in air produces alternating compressions and rarefactions.

(a) Name the relevant concept. **1**

(b) Explain why it applies. **1**

(c) Explain Nitrogen cycle with a suitable example. **2**

39. Consider the application below: Doubling a moving cart's speed quadruples its kinetic energy.

(a) Name the relevant concept. **1**

(b) Explain why it applies. **1**

(c) Explain Longitudinal wave with a suitable example. **2**

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