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CLASS 10

Science

Sample Paper 5 - 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. Which concept is illustrated in this example? A learner sees nearby print clearly but cannot see a distant board sharply. **1**

(A) Myopia
(B) Alveoli
(C) Recessive trait
(D) pH

2. Which statement correctly describes Pollination? **1**

(A) This scale reflects hydrogen-ion activity and distinguishes acidic, neutral and basic conditions.
(B) Pollen is transferred from an anther to a compatible stigma.
(C) Components share the same potential difference while current divides between branches.
(D) A moving charge or current can experience a force in a magnetic field depending on orientation.

3. Which concept is illustrated in this example? The heart sends blood separately toward the lungs and toward body tissues. **1**

(A) Double circulation
(B) Magnetic force
(C) pH
(D) Myopia

4. Which statement correctly describes Catenation? **1**

(A) Distant objects focus in front of the retina and a suitable concave lens can correct the condition.

(B) A neural pathway enables a rapid response to a stimulus, often through the spinal cord.

(C) Atoms of an element bond to each other to form chains or rings.

(D) At constant physical conditions, current is proportional to potential difference across an ohmic conductor.

5. Which concept is illustrated in this example? Doubling voltage across an unchanged resistor doubles current. **1**

(A) Oxidation

(B) Ohm's law

(C) Myopia

(D) Auxin

6. Which concept is illustrated in this example? Oxygen diffuses from lung air sacs into surrounding blood. **1**

(A) Magnetic force

(B) Double circulation

(C) Myopia

(D) Alveoli

7. Which concept is illustrated in this example? A current-carrying conductor moves when placed suitably between magnet poles. **1**

(A) Oxidation

(B) Auxin

(C) Parallel combination

(D) Magnetic force

8. Which concept is illustrated in this example? A submerged object can appear shallower when viewed from air. **1**

(A) Segregation of alleles

(B) Pollination

(C) Ohm's law

(D) Refraction

9. Which concept is illustrated in this example? Household appliances can be switched independently in separate branches. 1

(A) Myopia
(B) Auxin
(C) Parallel combination
(D) Oxidation

10. Which concept is illustrated in this example? An acidic solution becomes less acidic when suitably diluted with water. 1

(A) Ohm's law
(B) Auxin
(C) Double circulation
(D) pH

11. Which concept is illustrated in this example? Methanol and ethanol belong to the alcohol series. 1

(A) Alveoli
(B) Myopia
(C) Homologous series
(D) Oxidation

12. Which statement correctly describes Oxidation? 1

(A) Thin-walled air sacs with a large surface area enable efficient exchange of respiratory gases.
(B) Some persistent substances become more concentrated at higher trophic levels.
(C) A species loses electrons or gains oxygen in the relevant reaction description.
(D) This scale reflects hydrogen-ion activity and distinguishes acidic, neutral and basic conditions.

13. Which concept is illustrated in this example? Useful glucose is normally reabsorbed from the filtrate. 1

(A) Ohm's law
(B) Nephron
(C) Homologous series
(D) pH

14. Which concept is illustrated in this example? Sodium chloride forms an ionic crystal rather than discrete sodium chloride molecules. **1**

(A) Ionic bonding
(B) Magnetic force
(C) pH
(D) Reflex arc

15. Which statement correctly describes Biomagnification? **1**

(A) Electrostatic attraction holds oppositely charged ions together in a compound.
(B) Some persistent substances become more concentrated at higher trophic levels.
(C) A pair of alleles separates during gamete formation.
(D) A kidney's functional unit forms urine through filtration, reabsorption and secretion.

16. Which concept is illustrated in this example? A tt pea plant is dwarf in the standard monohybrid example. **1**

(A) Catenation
(B) Alveoli
(C) Recessive trait
(D) Oxidation

17. Which concept is illustrated in this example? A hand withdraws quickly from a dangerously hot object. **1**

(A) Biomagnification
(B) Parallel combination
(C) Reflex arc
(D) Ohm's law

18. Which statement correctly describes Auxin? **1**

(A) A plant growth regulator can produce differential cell elongation and directional growth.
(B) Atoms of an element bond to each other to form chains or rings.
(C) This scale reflects hydrogen-ion activity and distinguishes acidic, neutral and basic conditions.
(D) Electrostatic attraction holds oppositely charged ions together in a compound.

19. Which concept is illustrated in this example? Iron placed in copper sulfate solution can deposit copper. 1

(A) Myopia

(B) Double circulation

(C) Displacement reaction

(D) Oxidation

20. Which statement correctly describes Segregation of alleles? 1

(A) A neural pathway enables a rapid response to a stimulus, often through the spinal cord.

(B) Distant objects focus in front of the retina and a suitable concave lens can correct the condition.

(C) A pair of alleles separates during gamete formation.

(D) A more reactive element replaces a less reactive element from its compound.

Section B - Short responses

21. An object is placed at twice the focal length of a convex lens with f = 44 cm. Calculate the image distance in cm using Cartesian signs. 2

22. Use this situation to explain pH, connecting the definition to the details: An acidic solution becomes less acidic when suitably diluted with water. 2

23. A resistor of 43 ohms carries 3 A. Calculate power dissipated. 2

24. Use this situation to explain Parallel combination, connecting the definition to the details: Household appliances can be switched independently in separate branches. 2

25. An object is placed at twice the focal length of a convex lens with f = 47 cm. Calculate the image distance in cm using Cartesian signs. 2

26. Use this situation to explain Auxin, connecting the definition to the details: A shoot bends toward light as growth differs across its sides. 2

Section C - Short responses

27. A resistor of 40 ohms carries 3 A. Calculate power dissipated. **3**

28. Compare Displacement reaction and pH. Give the meaning and an appropriate application of each. **3**

29. An object is placed at twice the focal length of a convex lens with f = 48 cm. Calculate the image distance in cm using Cartesian signs. **3**

30. Use this situation to explain Recessive trait, connecting the definition to the details: A tt pea plant is dwarf in the standard monohybrid example. **3**

31. A resistor of 41 ohms carries 3 A. Calculate power dissipated. **3**

32. Use this situation to explain Catenation, connecting the definition to the details: Carbon forms straight, branched and cyclic structures. **3**

33. An object is placed at twice the focal length of a convex lens with f = 49 cm. Calculate the image distance in cm using Cartesian signs. **3**

Section D - Extended responses

34. (a) Explain Magnetic force and analyse this application: A current-carrying conductor moves when placed suitably between magnet poles.
(b) Explain pH and show how this second application fits it: An acidic solution becomes less acidic when suitably diluted with water. **5**

35. (a) Explain Homologous series and analyse this application: Methanol and ethanol belong to the alcohol series.
(b) Explain Catenation and show how this second application fits it: Carbon forms straight, branched and cyclic structures. **5**

36. (a) Explain Biomagnification and analyse this application: A persistent pollutant accumulates more strongly in a fish-eating bird than in its prey. (b) Explain Displacement reaction and show how this second application fits it: Iron placed in copper sulfate solution can deposit copper. **5**

Section E - Case and application questions

37. Consider this situation: Sodium chloride forms an ionic crystal rather than discrete sodium chloride molecules.

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

(b) Explain the connection between the situation and that concept. **1**

(c) Distinguish that concept from Oxidation, giving an appropriate feature of each. **2**

38. Consider this situation: The heart sends blood separately toward the lungs and toward body tissues.

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

(b) Explain the connection between the situation and that concept. **1**

(c) Distinguish that concept from Alveoli, giving an appropriate feature of each. **2**

39. Consider this situation: A heterozygous pea plant produces gametes carrying either T or t.

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

(b) Explain the connection between the situation and that concept. **1**

(c) Distinguish that concept from Recessive trait, giving an appropriate feature of each. **2**

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