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CLASS 10

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 resistor of 3 ohms carries 3 A. Calculate power dissipated. **1**
(A) 29 (B) 26 (C) 27 (D) 28

2. Select the term described below. A species loses electrons or gains oxygen in the relevant reaction description. **1**
(A) Double circulation (B) Recessive trait (C) Oxidation (D) Displacement reaction

3. Select the term described below. A more reactive element replaces a less reactive element from its compound. **1**
(A) Recessive trait (B) Displacement reaction (C) Oxidation (D) Double circulation

4. An object is placed at twice the focal length of a convex lens with f = 11 cm. Calculate the image distance in cm using Cartesian signs. **1**
(A) 24 (B) 22 (C) 23 (D) 21

5. Select the term described below. This scale reflects hydrogen-ion activity and distinguishes acidic, neutral and basic conditions. **1**
(A) Oxidation (B) Double circulation (C) Recessive trait (D) pH

6. Select the term described below. Electrostatic attraction holds oppositely charged ions together in a compound. **1**
(A) Double circulation (B) Recessive trait (C) Oxidation (D) Ionic bonding

7. A resistor of 4 ohms carries 3 A. Calculate power dissipated. 1
(A) 38 (B) 37 (C) 36 (D) 35

8. Select the term described below. Atoms of an element bond to each other to form chains or rings. 1
(A) Catenation (B) Oxidation (C) Recessive trait (D) Double circulation

9. Select the term described below. Related organic compounds share a functional group and successive members usually differ by CH_2. 1
(A) Recessive trait (B) Oxidation (C) Homologous series (D) Double circulation

10. An object is placed at twice the focal length of a convex lens with f = 12 cm. Calculate the image distance in cm using Cartesian signs. 1
(A) 23 (B) 24 (C) 25 (D) 26

11. Select the term described below. Thin-walled air sacs with a large surface area enable efficient exchange of respiratory gases. 1
(A) Alveoli (B) Oxidation (C) Recessive trait (D) Double circulation

12. Select the term described below. Blood passes through the heart twice during one complete pulmonary and systemic circuit. 1
(A) Recessive trait (B) Oxidation (C) Alveoli (D) Double circulation

13. A resistor of 5 ohms carries 3 A. Calculate power dissipated. 1
(A) 47 (B) 46 (C) 44 (D) 45

14. Select the term described below. A kidney's functional unit forms urine through filtration, reabsorption and secretion. 1
(A) Recessive trait (B) Oxidation (C) Alveoli (D) Nephron

15. Select the term described below. A neural pathway enables a rapid response to a stimulus, often through the spinal cord. 1
(A) Oxidation (B) Recessive trait (C) Reflex arc (D) Alveoli

16. An object is placed at twice the focal length of a convex lens with f = 13 cm. Calculate the image distance in cm using Cartesian signs. 1
(A) 27 (B) 25 (C) 28 (D) 26

17. Select the term described below. A plant growth regulator can produce differential cell elongation and directional growth. 1
(A) Auxin (B) Oxidation (C) Alveoli (D) Recessive trait

18. Select the term described below. Pollen is transferred from an anther to a compatible stigma. 1
(A) Pollination (B) Alveoli (C) Oxidation (D) Recessive trait

19. A resistor of 6 ohms carries 3 A. Calculate power dissipated. 1
(A) 56 (B) 55 (C) 53 (D) 54

20. Select the term described below. A pair of alleles separates during gamete formation. 1
(A) Segregation of alleles (B) Oxidation (C) Recessive trait (D) Alveoli

Section B - Short responses

21. An object is placed at twice the focal length of a convex lens with f = 14 cm. Calculate the image distance in cm using Cartesian signs. 2

22. A resistor of 7 ohms carries 3 A. Calculate power dissipated. 2

23. An object is placed at twice the focal length of a convex lens with f = 15 cm. Calculate the image distance in cm using Cartesian signs. 2

24. A resistor of 8 ohms carries 3 A. Calculate power dissipated. 2

25. An object is placed at twice the focal length of a convex lens with f = 16 cm. Calculate the image distance in cm using Cartesian signs. 2

26. A resistor of 9 ohms carries 3 A. Calculate power dissipated. 2

Section C - Short responses

27. An object is placed at twice the focal length of a convex lens with f = 17 cm. Calculate the image distance in cm using Cartesian signs. 3

28. A resistor of 10 ohms carries 3 A. Calculate power dissipated. 3

29. An object is placed at twice the focal length of a convex lens with f = 18 cm. Calculate the image distance in cm using Cartesian signs. 3

30. Define Oxidation and illustrate it with a relevant example. 3

31. Define Displacement reaction and illustrate it with a relevant example. 3

32. Define pH and illustrate it with a relevant example. 3

33. Define Ionic bonding and illustrate it with a relevant example. 3

Section D - Extended responses

34. Explain why carbon commonly forms covalent compounds and can form long chains. Include the meanings of tetravalency and catenation. 5

35. In a monohybrid cross between two heterozygous tall pea plants, use T for dominant tallness and t for dwarfness. Give the offspring genotypes and expected phenotypic ratio. 5

36. A convex lens of focal length 15 cm forms an image of an object placed 30 cm in front of it. Use the Cartesian sign convention to calculate image distance and magnification, and describe the image. 5

Section E - Case and application questions

37. Consider the following case: Copper heated in air forms black copper oxide.

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

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

    (c) Explain Ionic bonding with another appropriate example. 2

38. Consider the following case: Iron placed in copper sulfate solution can deposit copper.

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

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

(c) Explain Catenation with another appropriate example. **2**

39. Consider the following case: An acidic solution becomes less acidic when suitably diluted with water.

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

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

(c) Explain Homologous series with another appropriate example. **2**

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