Is Matter Around Us Pure? (Practise Questions)

I. Very Short Answer Questions (1 mark)

1. What is a pure substance?
2. Define a mixture.
3. Give one example of a homogeneous mixture.
4. What is a heterogeneous mixture?
5. Give an example of a heterogeneous mixture.
6. Name a method used to separate cream from milk.
7. What is a solution?
8. Define solute.
9. Define solvent.
10. Give one example of a solid solute in a liquid solvent.
11. Name a gaseous solute in a gaseous solvent.
12. What is a saturated solution?
13. What is a solubility?
14. Define alloy.
15. Give one example of a solid solution.
16. What is a suspension?
17. Define colloid.
18. Name a colloid with solid dispersed in liquid.
19. What is the Tyndall effect?
20. Can true solutions show Tyndall effect?
21. Is air a mixture or a compound?
22. Which separation technique is used for separating dyes in black ink?
23. Name the technique used to obtain pure crystals from an impure solid.
24. What is centrifugation?
25. Give one example of a physical change.

II. Short Answer Questions (2–3 marks)

26. Differentiate between a pure substance and a mixture.
27. Why is air considered a mixture?
28. What are the properties of a solution?
29. How can you separate salt from water?
30. What is the difference between a saturated and an unsaturated solution?
31. Explain how common salt is obtained from seawater.
32. What is the role of a filter paper in filtration?
33. Name and define two types of mixtures.
34. How can we separate a mixture of oil and water?
35. What is crystallization?
36. Why is crystallization considered better than evaporation for purification?
37. Write two properties of colloids.

38. How does a suspension differ from a solution?
39. What is meant by “components of a mixture”?
40. What happens when a beam of light passes through a colloid?

III. Long Answer Questions (4–5 marks)

41. Describe the process of separating a mixture of salt, sand, and water.
42. Explain with an example the difference between homogeneous and heterogeneous mixtures.
43. What is chromatography? Explain its principle and applications.
44. Explain how you can separate a mixture of two immiscible liquids.
45. Describe an activity to show that the composition of a compound is fixed.
46. How can you separate a mixture of ammonium chloride and salt?
47. Describe the process of fractional distillation with a labeled diagram.
48. How will you prove that air is a mixture and not a compound?
49. Give differences between a solution, suspension, and colloid in tabular form.
50. Explain how the method of separating mixtures depends on the properties of the components.

IV. Multiple Choice Questions (MCQs)

51. Which of the following is a homogeneous mixture?
    a) Air
    b) Oil and water
    c) Sand and iron filings
    d) None of these
52. Which of the following is a pure substance?
    a) Milk
    b) Sugar
    c) Soil
    d) Air
53. Brass is an example of:
    a) Compound
    b) Element
    c) Alloy
    d) None
54. Which method is used to separate butter from curd?
    a) Evaporation
    b) Filtration
    c) Centrifugation
    d) Sublimation

55. The component that dissolves in a solution is called:
    a) Solute
    b) Solvent
    c) Mixture
    d) None
56. Which type of mixture shows the Tyndall effect?
    a) Solution
    b) Suspension
    c) Colloid
    d) Both b and c
57. Which separation technique is used to purify solids?
    a) Filtration
    b) Sublimation
    c) Crystallization
    d) Distillation
58. Which of the following is a colloidal solution?
    a) Salt in water
    b) Muddy water
    c) Milk
    d) Air
59. A mixture of chalk powder and water is:
    a) Solution
    b) Colloid
    c) Suspension
    d) Compound
60. The solubility of a solid solute in a liquid increases with:
    a) Decrease in temperature
    b) Increase in temperature
    c) Increase in pressure
    d) Decrease in pressure

V. True or False

61. Colloids are heterogeneous in nature.
62. Solutions can scatter light.
63. Air is a homogeneous mixture.
64. Filtration is used to separate solids from liquids.
65. Components of a compound can be separated by physical methods.
66. Suspensions are stable mixtures.
67. Alloy is a compound.
68. In chromatography, the most soluble dye rises the fastest.
69. Mixtures have fixed melting and boiling points.
70. Solvent is always a liquid.

VI. Fill in the Blanks

71. A _____ is a mixture of two or more metals.
72. A saturated solution contains the _____ amount of solute.
73. Milk is an example of a _____.
74. _____ is used to separate two immiscible liquids.
75. _____ effect is shown by colloids.
76. The boiling point of a pure substance is _____.
77. The process of forming crystals from a solution is called _____.
78. A solution that contains less solute than required is called _____.
79. _____ is used to separate soluble solids from liquids by heating.
80. _____ is a method of separating volatile solids from non-volatile solids.

VII. Match the Following

81. - 85

1. Tyndall Effect	(a) Solution
2. Alloy	(b) Colloid
3. Evaporation	(c) Salt from water
4. Filtration	(d) Sand from Water
5. Centrifugation	(e) Butter from curd

VIII. Assertion and Reasoning

86. Assertion: Milk is a colloid.
    Reason: It shows Tyndall effect.
    a) Both A and R are true, R is correct explanation of A
    b) Both A and R are true, R is not correct explanation
    c) A is true, R is false
    d) A is false, R is true
87. Assertion: Colloids are transparent.
    Reason: Particles of colloids are small.
    (Choose the correct option as above)
88. Assertion: All mixtures are impure substances.
    Reason: Their composition is not fixed.
    (Choose the correct option)

89. Assertion: Water is a compound.
    Reason: It can be broken down into hydrogen and oxygen.
    (Choose the correct option)
90. Assertion: Alloys are heterogeneous mixtures.
    Reason: Alloys do not show Tyndall effect.
    (Choose the correct option)

IX. Diagram-based Questions

91. Label a setup used for separating a mixture of salt and ammonium chloride.
92. Draw a diagram for the fractional distillation apparatus.
93. Show the steps for separating sand, salt, and water.
94. Diagrammatically represent centrifugation.
95. Label a chromatographic setup and its components.

X. Application-Based/Case Study Questions

96. A student mixes salt and sugar. How can you separate them?
97. Why does smoke scatter light but air doesn't?
98. Rani added copper sulphate in water and stirred. What type of mixture is it?
99. Arjun added milk to lemon juice and saw curdling. Is it a chemical or physical change?
100. A glass of water has salt and sugar dissolved. How can you identify which is more soluble?