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Department of Science & Humanities (Chemistry)

UNIT 3 – ALLOYS AND PHASE RULE

1. An alloy is a

- a. Pure metal
- b. Mixture of metals in any proportion
- c. Mixture of metals in fixed proportion
- d. Mixture of two non metals**

Answer (d)

2. The alloy used for dental filling is

- a. Amalgam**
- b. Brass
- c. Bronze
- d. Manganin

Answer (a)

3. Which of the following is not an alloy?

- a. Steel**
- b. Copper
- c. Brass
- d. Bronze

Answer (a)

4. By adding chromium to steel which of the following property is enhanced?

- a. Resistance to corrosion**
- b. Electrical characteristics
- c. Magnetic property
- d. Ductility

Answer (a)

5. The first alloy made by humans was

- a. Steel
- b. Brass
- c. Bronze**
- d. Mild steel

Answer(c)

6. Brass is an alloy of

- a. Copper and Nickel
- b. Copper and Iron
- c. Copper and Tin
- d. Copper and Zinc**

Answer (d)

7. Which of the following alloy has copper as a major constituent?

- a. Gun metal**
- b. Magnox
- c. Nichrome
- d. Satellite

Answer (d)

8. Brass is an alloy of

- a. Copper and tin
- b. Copper and nickel
- c. Copper and Aluminium.
- d. Copper and zinc**

Answer(d)

9. Duralumin is an alloy of

- a. Aluminium and Copper**
- b. Aluminium and iron
- c. Aluminium and Carbon

d. Aluminium and mercury

Answer(a)

10. Which of the following alloy is used in making aircraft structures?

a .Duralumin

b. Brass

c. Bronze

d. Manganin

Answer(a)

11. At a triple point.....

A. three phases co-exist in equilibrium

B. the vapour pressure is equal to the atmospheric pressure

C. there are three components in equilibrium

D. there are three degrees of freedom

Answer: (a)

12.. For one component system, at triple point the number of degrees of freedom is

A. zero

B. one

C. two

D. three

Answer: (a)

13. For one component system, there does not exist a quadruple point as the number of degrees of freedom cannot be

A. zero

B. -1

C. 1

D. 2

Answer: (b)

14. In a single – component condensed system, if degree of freedom is zero, maximum number of phases that can co – exist _____

- a) **2**
- b) 3
- c) 0
- d) 1

Answer: (a)

15. The degree of freedom at a triple point in the unary diagram for water is _____

- a) 2
- b) 3
- c) **0**
- d) 1

Answer: (c)

16. What is degree of freedom for single – phase fields on the phase diagram?

- a) **2**
- b) 3
- c) 0
- d) 1

Answer: (a)

17. For single component system when degree of freedom is 1(one) then number of phases

- a) 2
- b) 3
- c) 0
- d) **1**

Answer: (d)

18. What is Gibbs phase rule for general system?

- a) $P = C - 1 - F$
- b) $P = C + 1 - F$
- c) $P + F = C - 2$
- d) **$P + F = C + 2$**

Answer: (d)

19. What is Gibbs phase rule for metallurgical system?

- a) $F = C - 1 - P$
- b) **$F = C + 1 - P$**
- c) $P + F = C - 2$
- d) $P + F = C + 2$

Answer: (b)

20. In a single – component condensed system, if degree of freedom is zero, maximum number of phases that can co – exist _____

- a) **2**
- b) 3
- c) 0
- d) 1

Answer: (a)

21. Select the wrong statements from the following statements with respect to a phase diagram.

- a) Gives information about concentration
- b) Gives information about solubility
- c) Gives information on melting and boiling points
- d) **Gives information on relative concentration**

Answer: (d)

22. Select the odd statement with respect to a phase reaction.

- a) **Saturated solution**
- b) Equilibrium solution
- c) Concentric solution
- d) Amorphous solution

Answer: (a)

23. Calculate the eutectic concentration given the following data.

Pressure= 1 atm

Temperature: 1°C

- a) 0
- b) 2
- c) **1**
- d) 3

Answer: (c)

24. Under what condition, will we get a stable phase diagram?

- a) **Solid + Liquid**
- b) Solid + Vapor
- c) Liquid + vapor
- d) Liquid + Solid

Answer: (a)

25. What is the point at which all the three phases of a system exist?

- a) **Triple point**
- b) Sublimation point
- c) Vapor point
- d) Eutectic point

Answer: (a)