

**SYBPharm Sem III**  
**Physical Pharmacy I**  
**Practice Questions & Answer Key**

1. If 25 g of a liquid occupies 20 cm<sup>3</sup> in a measuring cylinder, what is the density of the liquid?

- a) 0.25 g cm<sup>-3</sup>
- b) 0.8 g cm<sup>-3</sup>
- c) 1.25 g cm<sup>-3</sup>
- d) 5 g cm<sup>-3</sup>

2. Which property measures the resistance of a liquid to flow?

- a) Density
- b) Viscosity
- c) Volume
- d) Solubility

3. What is the concentration of a 0.5 % (w/v) solution when expressed as mg mL<sup>-1</sup>?

- a) 0.005 mg mL<sup>-1</sup>
- b) 0.05 mg mL<sup>-1</sup>
- c) 0.5 mg mL<sup>-1</sup>
- d) 5 mg mL<sup>-1</sup>

4. Which of the following excipients may be used to limit the presence of microorganisms in a liquid formulation?

- a) Purified water
- b) Sodium lauryl sulphate
- c) Benzalkonium chloride
- d) Ascorbic acid

5. What is the role of xanthan gum within some liquid formulations?

- a) Regulate pH
- b) Control viscosity
- c) Enhance solubility
- d) Enhance stability

6. Which of the following liquid dosage forms requires a sterile formulation?

- a) Eye drops
- b) Spray applied to skin
- c) Shampoo
- d) Oral syrup

7. In term pH, H indicates

- a) Hydrogen

- b) Haemoglobin
- c) Helium
- d) Half life

8. For an aqueous solution of hydrochloric acid (HCl) the pH was found to be 4.18 units. What is the concentration of HCl in this solution?

- a)  $2.2 \times 10^{-3}$  M
- b)  $1.4 \times 10^{-3}$  M
- c)  $3.2 \times 10^{-4}$  M
- d)  $4.8 \times 10^{-4}$  M
- e)  $6.6 \times 10^{-5}$  M

9. In which method, tonicity is calculated by adding water to the drugs to make an isotonic solution

- a. Sodium chloride equivalent method
- b. Cryoscopic method
- c. White Vincent Method
- d. Potentiometric method

10. The tonicity of solutions can be determined by

- a. Colorimetric method
- b. pH method
- c. Dew point method
- d. Viscosity

11. .Cryoscopic method for adjusting tonicity and pH comes under

- a. Class I Method
- b. Class II Method
- c. Class III Method
- d. Class IV Method

12. The solution having an osmotic pressure greater than that of 0.9% w/v sodium chloride is called

- a. Hypertonic solutions
- b Isoosmotic solution
- c. Hypotonic solution
- d. Isotonic solution

13. The value 14 on pH scale indicates

- a. Strongly alkaline
- b. Neutral
- c. Strongly acidic
- d. Weakly acidic

14. . Which of the following methods are used to measure pH value?

- a. pH paper
- b. Cloudmethod

- c. Raft method
- d. White Vincent Method

15.. The term pH was first used by

- a. Soren Peter Lauritz Sorensen.
- b. Louis Pasteur
- c. James Kelvin
- d. Alfard Columb

16. Maximum buffer capacity occur when

- a.  $\text{pH} = \text{pKa}$
- b.  $\text{pH} > \text{pKa}$
- c.  $\text{pH} < \text{pKa}$
- d.  $\text{pKa} = \text{pKb}$

17. Which of the following Colligative property

- a) osmotic pressure
- b) solubility solute
- c) dissociation of solute
- d) Hydroxyl ion concentration

18. Colligative property of solution is related to

- a) pH of the solution
- b) pKa
- c) Total numbers of solute particle in solution.
- d) total numbers of ions in the solution

19. pH of pharmaceutical buffer can be calculated by

- a) pH partition theory
- b) Michalis Menten equation
- c) Noys Whiteny equation
- d) Handerson Hasselbalch equation

20. Cryoscopy method used for calculation of isotonic solution is based upon

- a) Molecular concentration of drug
- b) Freezing point depression of drug
- c) Boiling point elevation of drug
- d) pH of the solution

21. Buffer solutions

- a) are strongly acidic
- b) resist pH change
- c) decrease the pH of the solution
- d) increase the pH of the solution

22. Apparatus used to determine surface tension of liquid is

- a. Capillary tube viscometer
- b. Du Nouy tensiometer
- c. Rotometer
- d. Rheometer

23. HLB Scale was introduced by

- a. Griffin
- b. Brunauer
- c. Emmett
- d. Teller

24. Surfactant with HLB value more than 16 indicate

- a) Wetting agent
- b) Detergent
- c) Spreading agent
- d) Solubilizing agent

25. The different between work of adhesion and work of cohesion is called

- a) spreading coefficient
- b) surface tension
- c) interfacial tension
- d) viscosity

26. The unit of surface tension is

- a)  $\text{N/m}^2$
- b) dyne/m
- c)  $\text{N/cm}$
- d)  $\text{N/m}$

27. SLS is example of

- a) Anionic surfactant
- b) Non ionic surfactant
- c) Cationic surfactant
- d) Amphiphilic

28. Stalagmometer is used to determine

- a) Viscosity
- b) Surface Tension
- c) Solubility
- d) Particle size

29. Which of the following method used exclusively to determine Interfacial tension.

- a) Capillary rise method
- b) Du Nouy tensiometer
- c) Drop Count method by stalagmometer
- d) Drop weight method by stalagmometer.

30. Which of the following method is used to determine surface tension of liquid.

- a) Capillary rise method
- b) Ostwald Viscometer method
- c) Sprowely method
- d) Griffin method

31. If the wetting angle between solid and liquid is 180 degree it indicates

- a) Good spreading property
- b) Poor spreading property
- c) Highly soluble in each other
- d) Miscible with each other

32. As per Langmuir adsorption isotherm what is equilibrium point.

- a) Rate of adsorption is greater than rate of desorption
- b) Rate of adsorption is lesser than rate of desorption
- c) Rate of adsorption and rate of desorption is equal
- d) Rate of adsorption and rate of desorption is zero.

33. Which is more stronger

- a) Physical Adsorption
- b) Chemical Adsorption

34. Raindrops are spherical in shape because of

- a) Capillary
- b) Surface Tension
- c) Downward motion
- d) Acceleration due to gravity

35. If common salt is dissolved in water, then the surface tension of saltwater is

- a) Increased
- b) Decreased
- c) Not changed
- d) First increases then decrease

36. A drop of oil is placed on the surface of the water. Which of the following statements is correct?

- a) It will remain on it as a sphere
- b) It will spread as a thin layer
- c) It will partly be as spherical droplets and partly as thin films
- d) It will float at the distorted drop on the water surface.

37. How do insects such as pond skaters stay afloat on water?

- a) Because of high surface tension of water
- b) As they can swim

- c) Because they are less dense than water
- d) Because they have special legs.

38. The contact angle forming between magnesium stearate and water is larger than that between lactose and water because:

- a) Magnesium stearate is more hydrophilic
- b) Magnesium stearate is more hydrophobic
- c) Lactose has more surface energy
- d) Both have equal hydrophilicity

39.. What is the main result of adding surfactants into a liquid composed of two immiscible phases such as oil and water?

- a) Reduction in the interfacial tension between the phases
- b) Increase in the interfacial tension between the phases
- c) Catalysation of a chemical reaction between the phases
- d) Nothing happens

40.. A surfactant with a very large Hydrophile-Lipophile Balance (HLB) value (e.g. 40) is expected to function as a:

- a) Anti-foaming agent
- b) Water in oil (w/o) emulsifier
- c) Oil in water (o/w) emulsifier
- d) Solubility enhancer

41. Number of moles of a solute per liter of solution

- a. Molarity
- b. Molality
- c. Normality
- d. Equivalency

42. Mole fraction of solute is the ratio of

- a. the number of moles of solute
- b. the total number of moles of solute and solvent
- c. the number of moles of solute and the total number of moles of solute and solvent.
- d. the number of moles of solvent minus number of moles of solute.

43. Which of the following is not a system of measure of solubility

- a. Mass per volume
- b. Molarity
- c. Milliequivalent
- d. Enthalpy

44. According to USP, Sparingly soluble means the Parts of solvent required for one part of solute is

- a. 30-100
- b. 10-30
- c. 100-1000
- d. Less than 1

45. The Normality of a solution depends on the

- a. volume of solvent
- b. temperature
- c. pressure.
- d. number of dissociable H and OH ions.

46. At a specified temperature, maximal amount of solute that can dissolve in an amount of solvent is known as

- a. Solubility
- b. Dissolution
- c. Diffusion
- d. Capacity

47. Additional or Extra solute will not dissolve in a

- a. saturated solution
- b. dilute solution
- c. concentrated solution
- d. non aqueous solution

48. Solubility Curve is a curve drawn between

- a. solubility and temperature
- b. solubility and pressure
- c. solubility and mole fraction
- d. solubility and enthalpy

49. The solubility of gas \_\_\_\_\_ with rising temperature

- a. Increase
- b. Decrease
- b. Remain constant
- d. nothing Happen



50 The chemical reaction in which the opposite electric charge ions come together in solution and form a distinct chemical entity is called

- a. Association
- b. Solvation
- c. Combination
- d. Capacitance

## ANSWER KEY

<b>Question Number</b>	<b>Answer</b>
<b>1</b>	<b>c</b>
<b>2</b>	<b>b</b>
<b>3</b>	<b>d</b>
<b>4</b>	<b>c</b>
<b>5</b>	<b>b</b>
<b>6</b>	<b>a</b>
<b>7</b>	<b>a</b>
<b>8</b>	<b>e</b>
<b>9</b>	<b>c</b>
<b>10</b>	<b>a</b>
<b>11</b>	<b>a</b>
<b>12</b>	<b>a</b>
<b>13</b>	<b>a</b>
<b>14</b>	<b>a</b>
<b>15</b>	<b>a</b>
<b>16</b>	<b>a</b>
<b>17</b>	<b>a</b>
<b>18</b>	<b>c</b>
<b>19</b>	<b>d</b>
<b>20</b>	<b>b</b>
<b>21</b>	<b>b</b>
<b>22</b>	<b>b</b>
<b>23</b>	<b>a</b>
<b>24</b>	<b>d</b>
<b>25</b>	<b>a</b>

<b>26</b>	<b>d</b>
<b>27</b>	<b>a</b>
<b>28</b>	<b>b</b>
<b>29</b>	<b>b</b>
<b>30</b>	<b>a</b>
<b>31</b>	<b>b</b>
<b>32</b>	<b>c</b>
<b>33</b>	<b>b</b>
<b>34</b>	<b>b</b>
<b>35</b>	<b>a</b>
<b>36</b>	<b>b</b>
<b>37</b>	<b>a</b>
<b>38</b>	<b>b</b>
<b>39</b>	<b>a</b>
<b>40</b>	<b>d</b>
<b>41</b>	<b>a</b>
<b>42</b>	<b>c</b>
<b>43</b>	<b>d</b>
<b>44</b>	<b>a</b>
<b>45</b>	<b>d</b>
<b>46</b>	<b>a</b>
<b>47</b>	<b>c</b>
<b>48</b>	<b>a</b>
<b>49</b>	<b>b</b>
<b>50</b>	<b>a</b>