Total No. of printed pages = 7

BP 302 T

Roll No. of candidate

2019

B.Pharm 3rd Semester End-Term Examination

PHYSICAL PHARMACEUTICS — I (Theory)

(New Regulations)

(w.e.f. 2017–2018)

Full Marks – 75   Time – Three hours

The figures in the margin indicate full marks
for the questions.

1. Answer the following questions : (MCQ)

   $(20 \times 1 = 20)$

   (i) The result of allowing a gas to pass from a high pressure zone to a low pressure zone

   (a) The gas become liquid

   (b) Gives heating effect

   (c) Gives cooling effect

   (d) None of the above

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(ii) Heat absorbed or liberated at the time of change of state of matter is

    (a) Sensible heat

    (b) Critical heat

    (c) Transition heat

    (d) Latent heat

(iii) The phenomenon of having same physical properties in all direction is known as

    (a) Isotropy

    (b) Crystallinity

    (c) Anisotropy

    (d) Isomerism

(iv) Which one of the following is not true for order of solubility

    (a) Amorphous>crystalline

    (b) Solvates>hydrates

    (c) Hydrates>Anhydrous

    (d) Metastable>Stable polymorph

(v) The ratio of partial pressure of water vapour to the equilibrium vapour pressure of water is known as

    (a) Critical pressure

    (b) Relative humidity

    (c) Eutectic point

    (d) Atmospheric pressure

(vi) The outer appearance of a crystal is called

    (a)   Metastable form

    (b)   Crystal habbit

    (c)   Pseudomorphism

    (d)   Apomorphism

(vii) The relationship between vapor pressure and absolute temperature of a liquid is expressed by

    (a)   Clausius Clapeyron equation

    (b)   Joule Thompson equation

    (c)   Gibbs equation

    (d)   Vant Hoff's equation

(viii) A viscous mixture of macromolecules (polymer) with a liquid likely to give

    (a)   Liquid crystal

    (b)   Eutectic mixture

    (c)   Liquid complex

    (d)   Compressed liquid

(ix) The surface tension of a liquid is —————— at critical temperature.

    (a)   Zero

    (b)   One

    (c)   Maximum

    (d)   Minimum

(x) Glycine forms complex with cupric ions only at pH range:

    (a) About neutral

    (b) Acidic

    (c) Alkaline

    (d) Both acidic and alkaline

(xi) Positive adsorption means

    (a) When the added molecules move to the interface

    (b) Added molecules distribute uniformly

    (c) When added molecules moves to the bulk

    (d) None of the above

(xii) Which one of the following is not an isotonic solution-

    (a) 0.9% w/v normal saline

    (b) 5.0% w/v dextrose solution

    (c) 1.8% w/v urea solution

    (d) 2% w/v boric acid solution

(xiii) Van Slykes's equation can be used for calculating-

    (a) Osmotic pressure

    (b) pH

    (c) Ratio of salt to acid

    (d) Buffer capacity

(xiv) Surface tension is

    (a)   Capacity factor

    (b)   Extensive property

    (c)   Intensive property

    (d)   Tolerance factor

(xv) Buffer capacity is maximum when:

    (a) $pH = pKa$

    (b) $pH > pKa$

    (c) $pH < pKa$

    (d)   None of the above

(xvi) The vapour pressure of solution can be measured by:

    (a)   Barrometers

    (b)   Manometers

    (c)   Siesmometer

    (d)   None of the above

(xvii) In coordinated complex, the function of a ligand is to:

    (a)   Accept a pair of electrons

    (b)   Accept one electron and share it

    (c)   Donate one electron and share it

    (d)   Donate a pair of electrons

(xviii) The reverse of melting phenomena is known as:

    (a)   Fusion

    (b)   Sublimation

    (c)   Freezing

    (d)   Condensation

(xix) Dielectric constant is a property related to

    (a)   Percent composition

    (b)   Polarity scale

    (c)   Qualitative analysis

    (d)   Structural elucidation

(xx) Dipolar molecule means:

    (a)   Even distribution of charges

    (b)   Uneven distribution of charges

    (c)   Both

    (d)   None of the above

2.   Answer any seven   (7 × 5 = 35)

    (a)   Explain the principle of diffusion in biological system.

    (b)   Describe the positive and negative deviations from the Raoult's law.

    (c)   What is spreading coefficient? Derive an equation for calculating spreading coefficient.

    (d)   Define refractive index and optical rotation with their applications.

(e) State the 'Distribution law'. Write its limitations and applications.

(f) Define-buffer, buffer capacity, hypotonic solution, isotonic solution, iso-osmotic solution.

(g) Draw the phase solubility diagram of phenol-Water system and explain its behavior.

(h) How temperature and pressure affect solubility of gases in liquids.

(i) What are the buffers available in human body? Describe the preparation of pharmaceutical buffer.

3. Answer any two questions: (2 × 10 = 20)

(a) What do you mean by surface tension and interfacial tension? Explain the method of measurement of surface tension by capillary rise method. Write the various applications of surface active agents with examples. (2+4+4)

(b) Classify the type of complexes. Briefly explain about inclusion complexes. Explain any one method of analysis of complexes. (2+4+4)

(c) Write shod notes: (Any four) (4 × 2.5 = 10)

(i) Inhalers

(ii) Absolute and relative humidity

(iii) Amorphous and crystalline

(iv) Glassy state

(v) Super Critical Fluids (SCF).

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