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BP 403 T

Roll No. of candidate [   ]

23/08/22

2022

B.Pharm 4th Semester End-Term Examination

PHYSICAL PHARMACEUTICS – II

Full Marks – 75   Time – Three hours

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

1. Answer the following (MCQ) : $(20 \times 1 = 20)$

    (i)   Emulsifying agent reduce _____ between two phases.

          (a)   Interfacial tension

          (b)   Intrafacial tension

          (c)   Intermediate tension

          (d)   None of these

    (ii) Oil in water emulsions usually show creaming in

          (a)   Upward direction

          (b)   Downward direction

          (c)   First upward and then downward direction

          (d)   First downward and then upward direction

    (iii) Electrodialysis method is employed in the colloidal chemistry for the purpose of

          (a)   Identification   (b)   Preparation

          (c)   Purification   (d)   Stabilization

    (iv) Dilatant materials are also referred to as:

          (a)   Shear thinning systems

          (b)   Shear thickening systems

          (c)   Bingharn bodies

          (d)   Both (a) and (b)

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(v) The disadvantage of Sieving method is:

(a) Agglomerates can be identified

(b) Attrition of powder is possible

(c) Large number of sieves are required

(d) Tedious and time consuming

(vi) Brooke-field viscometer is an example of:

(a) Rotating sphere viscometer

(b) Rotating spindle viscometer

(c) Cone and plate viscometer

(d) Cup and bob viscometer

(vii) Addition of alcohol to a hydrophilic colloid leads to:

(a) Crystallization

(b) Hydration

(c) Precipitation

(d) Stabilization

(viii) Dispersion containing dispersed particles of about 1 to 100 μm size are referred as:

(a) Coarse dispersion

(b) Colloidal dispersion

(c) Flocculated dispersion

(d) Non-flocculated dispersion

(ix) The storage directions on a parenteral solution specify "store in a cool place". This may be stored in:

(a) An air-conditioned area at 10°C

(b) A refrigerator at 15°C

(c) At 5°C

(d) Room temperature

(x) Thixotropy in a plastic system indicates a gel-sol-gel transformation while negative thixotropy indicates:

(a) Gel-sol-sol transformation

(b) Sol-gel-sol transformation

(c) Sol-gel-gel transformation

(d) Sol-sol-gel transformation

(xi) Which of the following does not play a part in determining the rate of a reaction?

(a) Temperature

(b) Solvent

(c) The presence of a catalyst

(d) The equilibrium constant

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(xii) K= x/at(a-x) equation is concerned with which order:

    (a)   First   (b)   Pseudo first

    (c)   Second   (d)   Zero

(xiii) According to Stokes law, the creaming of emulsion is indirectly proportional to:

    (a)   Density of the dispersed phase

    (b)   Gravity

    (c)   Particle size of the globules of the dispersed phase

    (d)   Viscosity of the medium

(xiv) The HLB range of an emulsifier employed in the preparation of water-in-oil emulsion is:

    (a)   3 to 6   (b)   7 to 12

    (c)   13 to 15   (d)   More than 15

(xv) For an excellent flow property of powder Car's Index should be:

    (a)   1%   (b)   5%

    (c)   30%   (d)   38%

(xvi) The rate of sedimentation of a flocculated suspension is

    (a)   High   (b)   Low

    (c)   Intermediate   (d)   Nil

(xvii) Under ultra-microscope, colloidal particles appear as:

    (a)   Dark spots against bright background

    (b)   Bright spots against dark background

    (c)   Fluorescent specks

    (d)   Dark rings against bright background

(xviii) The stability of lyophobic colloids can be described by:

    (a)   DLVO theory

    (b)   Lyotropic series

    (c)   Schulze hardy rule

    (d)   Donnan membrane effect

(xix) Usually, the rate of a chemical reaction may be enhanced by:

    (a)   Cooling the reaction mixture

    (b)   Increasing the rate of stirring

    (c)   Raising the temperature of the reaction mixture

    (d)   Using stoichiometric quantities of each reactant

(xx) For an ideal suspension, the sedimentation volume should be

    (a)   Zero

    (b)   Equal to one

    (c)   Less than one

    (d)   More than one

2.   Answer any *seven* questions $(7 \times 5 = 35)$

    (a)   Define Angle of Repose. Mention its significance. Write the method for determining Angle of repose. $(1+1+3=5)$

    (b)   Write the Influence of temperature on the rate of a reaction.

    (c)   Describe any two methods for the purification of colloids.

    (d)   Explain the Coulter Counter method with the help of a labelled diagram.

    (e)   Explain the principle and working of Cone and plate viscometer.

    (f)   What is Cracking in emulsions? How is it prevented in pharmaceutical emulsions? $(2 + 3 = 5)$

    (g)   Differentiate between Newtonian and Non-newtonian systems with suitable examples.

    (h)   Explain different tests for identification of an emulsion.

    (i)   What is meant by sedimentation parameters? How are they evaluated? $(2+3=5)$

3.   Answer any *two* questions $(2 \times 10 = 20)$

    (a)   With relevant mathematical equation, give the construction, working and applications of Ostwald viscometer. What are its advantages and disadvantages? $(6+4=10)$

    (b)   Explain how flow property of a powder is evaluated?

    (c)   Write notes on: Gold number, DLVO theory. $(5+5=10)$