9/1/23

Seat Number | | | | | | |

DAGDU-19

BP-304T

Pharmaceutical Engineering

(723304)

Total Pages : 7]

Time : 3 Hours Max. Marks : 75

Note : (1) *All* questions are compulsory.

(2) Do not write anything on question paper except Seat No.

(3) No supplement will be provided.

(4) Figures to the right indicate full marks.

(5) Draw well labelled diagram wherever necessary.

1. Multiple choice questions : 20

(*i*) If Reynolds number, Re < 2000, Indicates flow is :

(*a*) Laminar

(*b*) Turbulent

(*c*) Transient

(*d*) All the above

(*ii*) The fineness of product in hammer mill is regulated by altering :

(*a*) Feed rate

(*b*) Rotor speed

(*c*) Clearance between hammers and grinding plate

(*d*) All the above

P.T.O.

(iii) Size reduction is also known as :

(a) Segregation

(b) Compaction

(c) Commination

(d) Separation

(iv) The process of transfer of thermal energy from hot places to cold places by mixing of warmer with cooler portion of same material.

(a) Conduction

(b) Evaporation

(c) Radiation

(d) Convection

(v) Bernoulli's theorem deals with law of conservation of :

(a) Energy

(b) Mass

(c) Volume

(d) Momentum

(vi) When the flow is whether viscous or turbulent, which equation is used to calculate friction loss ?

(a) Bernoulli's

(b) Fanning equation

(c) Stokes law

(d) Hagen Poiseuille

(vii) To Stefan-Boltzmann Law, energy radiated is proportional to :

(a) Absolute temperature

(b) Pressure

(c) Fourth power of absolute temperature

(d) Time

(viii) Size separation is also known as :

(a) Pulverization

(b) Diminutions

(c) Blending

(d) Sifting

(ix) Which of the following is not type of manometer ?

(a) V-tube

(b) Piezometer

(c) U-tube

(d) Single column manometer

(x) Ball Mill is used for :

(a) Very fine grinding

(b) Attrition

(c) Coarse grinding

(d) Both (a) and (c)

(xi) Unit of the rate of heat transfer is :

(a) Joule

(b) Newton

(c) Pascal

(d) Watt

(xii) Which type of mixture is easily formed ?

(a) Positive

(b) Negative

(c) Neutral

(d) Ampholytic

(xiii) Mechanism not used in solid-solid mixing :

(a) Connective

(b) Shear mixing

(c) Diffusion

(d) Tumbling

(xiv) Mechanism of mixing in sigma blade mixer :

(a) Connective

(b) Tumbling

(c) Shearing

(d) Diffusion

(*xv*) Mechanism of mixing in silverson mixer is :

(*a*) Connective

(*b*) Laminar

(*c*) Random

(*d*) Turbulent

(*xvi*) Degree of mixing is also known as :

(*a*) Degree of Homogeneity

(*b*) Extent of mixing

(*c*) Ordered mixing

(*d*) Random mixing

(*xvii*) Mills are not suitable for Friable (heat sensitive) materials :

(*a*) Cutter Mill

(*b*) Hammer Mill

(*c*) Colloidal Mill

(*d*) All the above

(*xviii*) Fibrous drugs are milled by using :

(*a*) Cutter Mill

(*b*) Hammer Mill

(*c*) Fluid Energy Mill

(*d*) Ball Mill

(*xix*) Fluid Energy Mill works on the principle of :

(*a*) Impact and Attrition

(*b*) Rotor and Stator

(*c*) Compression

(*d*) Attrition

(*xx*) The bell crank lever arrangement is major part of which of the following :

(*a*) Cyclone separator

(*b*) Edge runner Mill

(*c*) End runner Mill

(*d*) Bag filter

2. Attempt any *two* : 2×10=20

(*i*) Give a detailed account about principle, construction, working, uses, merits and demerits of sieve shaker.

(*ii*) Explain Principle, construction and operational details of Freeze Drying and give its applications also.

(*iii*) Categorize types of filters. Describe principle, construction, working of Plate and Frame filter.

3. Attempt any *seven* : 7×5=35

(*i*) Give the construction and working of Shell and tube heater.

(*ii*) Write a note on ball mill.

(*iii*) Write the properties, applications and disadvantages of iron as material for plant construction.

(*iv*) Describe equipment parts and working principle of spray drier.

(*v*) Write the construction and working of fluid energy mill.

(*vi*) Write the application of mixing and write the working, uses, merits and demerits of double cone blender.

(*vii*) Write principle, advantages and limitations of climbing film evaporator.

(*viii*) Differentiate between filtration and sedimentation centrifuges.

(*ix*) Explain the construction and working of drum filter.