DCC-003-001539   Seat No. _____

B. Sc. (CBCS) (Sem. V) Examination

May/June – 2015

IC-503 : Pharmaceuticals - I & Fundamentals of Chemical Engineering - I

Faculty Code : 003

Subject Code : 001539

Time : $2\frac{1}{2}$ Hours]   (Total Marks : **70**

Instructions : (1)   All the questions are compulsory.

(2)   Figures to the right indicate maximum marks.

(3)   Draw labeled diagram wherever necessary.

(4)   Assume suitable data.

(5)   Question 1 carries 20 marks and Question 2 and 3 each carries 25 marks.

1   Answer the following MCQ type of questions :   **20**

(1)   Freon is the type of _____ refrigerants.

(A) Natural   (B) Halo carbon

(C) Azeotropic   (D) Inorganic

(2)   The ratio of clearance volume to piston displacement volume is called _____ ?

(A) Pressure ratio   (B) Clearance factor

(C) Volume ratio   (D) All of the above

(3) The flow of water from the root to the tip of the tree is mainly _____ flow.

    (A) Transition   (B) Turbulent

    (C) Both (A) and (B)   (D) Laminar

(4) The substance which cannot be permanently deformed is called _____ ?

    (A) Solid   (B) Liquid,

    (C) Gas   (D) Both (B) and (C)

(5) Which of the following is characteristic of a liquid?

    (A) Compressible   (B) Definite shape

    (C) Zero viscosity   (D) Fluidity

(6) Mathematically, Reflux ratio is _____ ?

    (A) $L_o \times D$ (B) L_o^2/D

    (C) L_o/D^2 (D) L_o/D

(7) The correct range for coefficient of discharge through Orifice meter is?

    (A) 1.0 to 1.6   (B) 0.1 to 0.25

    (C) 0.98 to 0.99   (D) 0.60 to 0.66

(8) The transfer of energy from sun to earth is chiefly in the form of _____ ?

    (A) Radiation   (B) Conduction

    (C) Convection   (D) None

(9) The reciprocating compressor is used to compress a fluid in _____ stages.

(A) One (B) Two

(C) Three (D) Four

(10) The value of overall resistance offered to heat conduction through series of slabs is given as

(A) R1/(R2+R3) (B) (R1+R2+R3)

(C) (RI+R2)/R3 (D) (R1 × R2 × R3)

(11) Which of the following dosage form is put into the body orifice?

(A) Suppositories (B) Cream

(C) Powder (D) Tablet

(12) Pyrogen is high molecular weight.....

(A) Fats (B) Vitamins

(C) Amino acids (D) Lipopolysaccharides

(13) Which of the following is a thermoset?

(A) Polypropylene (B) Polyethylene

(C) Nylon (D) Melamine Formaldehyde

(14) A surgical material use to stop bleeding by tying of blood vessels is called?

(A) Suture (B) Ligature

(C) Gauge (D) Bandage

(15) Which of the following is an example of Sweetening Agent?

    (A) Amaranth   (B) Anise oil

    (C) Saccharin   (D) Acacia

(16) The basic constituent of Surgical Catgut is?

    (A) Glucose   (B) Protein

    (C) Collagen   (D) Fascia Lata

(17) The classification of crude drugs in which they divided into various parts of plants is called?

    (A) Taxonomical   (B) Pharmacological

    (C) Morphological   (D) Chemical

(18) Which of the following is an example of plant growth regulator?

    (A) Auxin   (B) Cytokinin

    (C) Gibberellin   (D) All

(19) Which of the following is not a chromatographic technique?

    (A) PC   (B) HPLC

    (C) TLC   (D) BOD

(20) Which of the following is an example of Preservative?

    (A) Sorbitol   (B) Methyl paraban

    (C) Propyl gallate (D) Cochineal

2 (a) Answer any Three out of Six :   6

      (1) Give classification of compressor?

      (2) Give characteristics properties of gases.

      (3) What do you mean by the term fouling factor?

      (4) Define :

          (i)   Phytochemicals

          (ii) Pharmacopoeia.

      (5) Define :

          (i)   Lubricant

          (ii) Polishing Agent.

      (6) Define :

          (i)   Suspension

          (ii) Pharmacognosy.

   (b) Answer any Three out of Six   9

      (1) Explain Mass and Energy balance of over a crystallizer.

      (2) What do you mean by natural convection and forced convection? Give example.

      (3) Enlist various characteristics of good refrigerants.

      (4) Explain: Antioxidants.

      (5) Explain: Features of ideal surgical dressing.

      (6) Explain: Isolation of Alkaloid in brief.

(c) Answer any Two out of Five : 10

   (1) Derive an equation for heat flow through a cylinder.

   (2) Enlist various characteristics of a good refrigerant.

   (3) Give principle, construction and working of an orifice meter.

   (4) Explain: Classification of Crude Drugs in detail.

   (5) Explain: Sutures and Ligatures in detail.

3 (a) Answer any Three out of Six : 6

   (1) What do you mean by a ton of refrigeration?

   (2) Define :

      (a) Hydrostatic

      (b) Aerodynamic.

   (3) What is meant by the term thermal conductivity? Give its units.

   (4) Define :

      (i) Palisade ratio

      (ii) Foreign Organic Matter

   (5) Define :

      (i) Vein Islet Number

      (ii) Vein Termination Number

   (6) Define : 1°, 2° and 3° packaging.

(b) Answer any Three out of Six : 9

    (1) What is meant by steady flow and unsteady flow?

    (2) Explain flow measurement in open channel through rectangular notch.

    (3) Explain classification of refrigerants.

    (4) Explain: Features of ideal surgical dressing

    (5) Explain: Preservative

    (6) Explain: Need for the dosage form (any six)

(c) Answer any Two out of Five : 10

    (1) Explain in details Reynolds experiment with labeled diagram.

    (2) What pressure ratio in compressing adiabatically would give 50% apparent volumetric efficiency? Given clearance factor is 5% and adiabatic index is 1.4.

    (3) Explain: History of Indian Pharmacopoeia.

    (4) Explain: Sterilization in detail.

    (5) Explain: Emulsion in detail.