HB-003-001539 Seat No. _____

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

May / June – 2017

Industrial Chemistry - 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 labelled diagram wherever necessary and assume suitable data.
(4) Question-1 carries 20 marks objective type question.
(5) Question-2 and 3 carries 25 marks each.

1 (1) Classify compressors on the basis of cooling system. **20**

(2) Define compression ratio.

(3) Define the term refrigerants.

(4) Enlist two natural refrigerants.

(5) Give units of thermal conductivity.

(6) Give any two functions of thermal insulator.

(7) What is natural convection?

(8) Enlist any two meters used for measurement of fluid flow through closed pipe.

(9) What do you mean by aerodynamics?

(10) What are Ideal fluids?

(11) Give one example of surgical dressing material.

(12) High molecular weight lipopolysaccharide is known as?

(13) The substances which are medicinally active and derived from natural sources are known as?

(14) Give one example of thermoplastic polymer.

(15) Saccharin is an example of?

(16) In emulsion the liquid which is in the form of globules is called?

(17) Give one example of plant growth regulator.

(18) The drug which kills the bacteria is known as?

(19) The branch of pharmaceutical which deals with natural drug substances is known as?

(20) Give one example of pharmaceutical excipient.

2 (a) Answer any **three** out of six **6**

(1) Enlist three modes of heat transfer.

(2) Define steady flow and unsteady flow.

(3) Write a short note on the term air-conditioning.

(4) Define :

(i) Polishing agent

(ii) LDPE

(5) Define :

(i) HDPE

(ii) R_f value

(6) Define :

(i) Antioxidant

(ii) Antiseptic

(b) Answer any **three** out of six : **9**

(1) Discuss mass and energy balance over evaporators.

(2) Explain with neat diagram working of simple manometer.

(3) Enlist characteristics of a good refrigerant.

(4) Explain : Features of ideal surgical dressing.

(5) Explain : Isolation of alkaloid in brief.

(6) Explain : Sweetening agent.

(c) Answer any **two** out of five : **10**

(1) Give diagram, principle, construction and working of venturimeter.

(2) Derive an equation for volumetric efficiency for a reciprocating compressor.

(3) Derive an equation for overall heat conduction for resistance in series.

(4) Explain : Parenteral route drug administration.

(5) Explain : Sterilization.

3 (a) Answer any **three** out of six : **6**

(1) What do you mean by the term reflux ratio?

(2) What do you mean by laminar flow and turbulent flow?

(3) Enlist any three applications of refrigeration process.

(4) Define :

(i) Stomatal Number

(ii) Stomatal Index

(5) Define :

(i) Phytochemicals

(ii) Suspension

(6) Define :

(i) Vein Islet Number

(ii) Vein Termination Number

(b) Answer any **three** out of six : **9**

(1) Enlist any three advantages of multistage compression.

(2) Explain construction and working of rotameter.

(3) State and explain Fourier's law of heat conduction.

(4) Explain : Preservatives

(5) Explain : Need for the dosage form (any six).

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

(c) Answer any **two** out of five : **10**

(1) Give diagram, principle, construction and working of a orificemeter.

(2) Derive an equation for overall heat conduction for resistance in parallel.

(3) Explain : Emulsion

(4) Give classification of crude drugs

(5) Explain : History of Indian Pharmacopoeia.
