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MCR-003-001539 Seat No. _____

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

May / June - 2018

IC-503 : Pharmaceuticals-1 & Fundamentals of Chemical Engineering-1

Faculty Code : 003

Subject Code : 001539

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

Instructions : (1) All questions are compulsory.
(2) Figures to the right indicate maximum marks.
(3) Draw labeled diagram wherever necessary.
(4) Assume suitable data, if required.
(5) Question-1 carries 20 marks subjective type question.
(6) Question-2 & 3 carries 25 marks each.

1 Subjective type questions : **20**

(1) Define the term aerodynamics.
(2) Define the term viscosity.
(3) Define the term pressure.
(4) Write Borda's equation.
(5) Give only name, at least one, of industrial thermal insulator.
(6) What is the significance of -ve sign in Fourier's law of heat conduction equation?
(7) Define reflux ratio.
(8) What do you mean by the term compressor?
(9) Define volumetric efficiency.
(10) What is meant by the term refrigeration?
(11) Elaborate the term "Pharmacopoeia".
(12) Give full form of L.A.L.
(13) Amaranth is example of _____

(14) Give one example of Thermoplastic polymer.
(15) Define: Antiseptic
(16) Draw the structure of methyl paraben.
(17) Give one example of pharmaceutical excipients used as a glidant.
(18) _____ is the branch of pharmaceutical, which deals with medicinal drugs obtained from plants and other natural sources.
(19) Physical evaluation of crude drug includes moisture content. True / False?
(20) Enlist various types of plaster.

2 (A) Answer any **Three** out of six : **6**

(1) Enlist any two characteristics of liquid state.
(2) Define : (a) Natural Convection (b) Forced Convection.
(3) Give names each at least two :
(a) Natural refrigerants (b) Artificial refrigerants.
(4) Define : (a) Ointment (b) Lotion
(5) Define : (a) HLB Value (b) Diluent
(6) Define : (a) Suppositories (b) Intra-muscular route

(B) Answer any **Three** out of six : **9**

(1) Explain uniform flow and non-uniform flow.
(2) Give mass and energy balance over crystallizer.
(3) Classify compressors on the basis of :
(a) Source of power, (b) Action,
(c) Pressure development.
(4) Explain Cytokinins in brief.
(5) Explain needs for the dosage form. (any six)
(6) Explain in brief 1°, 2° and 3° pharmaceutical packaging materials.

(C) Answer any **Two** out of five : **10**

(1) Give construction and working of U tube manometer.
(2) Derive an equation for upper operating line for a distillation column.

(3) Derive an equation to calculate work required per cycle for single acting reciprocating compressor working isothermally without clearance.
(4) Write a detailed note on sutures and ligatures.
(5) Explain in detail: Sterilization.

3 (A) Answer any **Three** out of six : **6**

(1) Enlist any two characteristics of gaseous state.
(2) Define : (a) Conduction (b) Radiation.
(3) What pressure ratio in compressing adiabatically would give 50% apparent volumetric efficiency? If adiabatic index is 1.4 and clearance is 5%.
(4) Define : (a) Stomatal Number (b) Stomatal lndex
(5) Define : (a) Palisade ratio (b) Water pores
(6) Define : (a) Disintegrating agent (b) Binders

(B) Answer any **Three** out of six : **9**

(1) What do you mean by ideal fluid and real fluid?
(2) State and derive equation for Fourier's law of, heat conduction.
(3) Enlist characteristics of a good refrigerant (any six).
(4) Explain features of ideal surgical dressing.
(5) Explain: Isolation of alkaloid in brief.
(6) Write a short note on Preservatives.

(C) Answer any **Two** out of five : **10**

(1) Give principle, construction and working of Venturimeter.
(2) Derive an equation for lower operating line for a distillation column.
(3) Give classification of crude drugs.
(4) Discuss Emulsion in detail.
(5) Write a detailed note onhistory of Indian Pharmacopoeia.
