



JX-003-001539

Seat No. _____

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

October - 2019

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

Faculty Code : 003

Subject Code : 001539

Time : **2:30** 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.
 - (6) Question-2 and 3 carry 25 marks each.

1 Answer the following questions : 20

- (1) Force per unit area is called pressure.
(True / False)
- (2) Continuity equation is derived on the basis of law of conservation of _____.
(Mass / Energy)
- (3) What do you mean by Rotational flow?
- (4) Define the term fluid?
- (5) Write mathematical statement of Fourier's law of conduction?
- (6) Define reflux ratio.
- (7) What is forced convection?
- (8) What is brine?
- (9) What is the refrigerant code for
 - (a) CO₂
 - (b) Dichlorodifluoromethane.
- (10) Give full form of COP?

- (11) Give one example of thermoplastic polymer.
- (12) Define : Phytochemicals
- (13) In emulsion liquid which is converted into minute globules is called disperse phase.
(True / False)
- (14) Basic nitrogenous substances obtained from the natural source are called _____.
- (15) _____ is an example of plant growth regulator.
- (16) High molecular weight lipopolysaccharide is known as?
- (17) Give one example of Preservative.
- (18) Sodium bisulphite is an example of _____.
- (19) Who was the chairman of the first edition of Indian Pharmacopoeia?
- (20) Material which is direct contact with the product is called 2° packaging material.
(True / False)

2 (a) Answer any **three** :

6

- (1) Define :
 - (a) Steady flow
 - (b) Path line.
- (2) What do you mean by conduction mode and convection mode of heat transfer?
- (3) What is mean by 1 ton of refrigeration?
- (4) Define :
 - (i) Pharmacopoeia
 - (ii) Flavoring agent.
- (5) Define :
 - (i) Lubricant
 - (ii) Foreign Organic Matter
- (6) Define :
 - (i) Palisade ratio
 - (ii) Pharmacognosy.

(b) Answer any **three** :

9

- (1) Write a brief note on laminar flow and turbulent flow.
- (2) Derive equation for mass balance and energy balance over crystallizer.
- (3) Classify compressor on the basis of
 - (a) Stage
 - (b) Drive
 - (c) Pressure development.
- (4) Explain : 1°, 2° and 3° packaging material.
- (5) Explain: Preservatives.
- (6) Explain: Sweetening agent.

(c) Answer any **two** :

10

- (1) Carbon tetra chloride is to be flow to smooth horizontal pipe of circular section and 0.03 m diameter at a volumetric flow rate of 2×10^{-3} m³/s. Estimate the pressure loss per meter length of pipe. Density & viscosity of CCl₄ are 1.5×10^3 kg/m³ and 0.87×10^{-3} Ns/m respectively.
- (2) Derive equation for lower operating line for a distillation column.
- (3) Derive an equation to calculate work required per cycle for single acting reciprocating compressor working isothermally with clearance.
- (4) Explain: Sterilization in detail.
- (5) Discuss: Emulsion in detail.

- 3** (a) Answer any **three** : **6**
- (1) Give any two characteristics of Liquid state.
 - (2) Define the term thermal conductivity.
 - (3) Give any four applications of refrigeration.
 - (4) Define :
 - (i) Antioxidant
 - (ii) Stomatal Number
 - (5) Define :
 - (i) Polishing agent
 - (ii) Vein Islet Number.
 - (6) Define :
 - (i) Stomatal Index
 - (ii) Vein Termination Number.
- (b) Answer any **three** : **9**
- (1) Give advantage and disadvantage of venturimeter.
 - (2) Explain with diagram simple U tube manometer.
 - (3) Write a short note on ammonia as a refrigerant.
 - (4) Explain : features of ideal surgical dressing.
 - (5) Explain : Need for the dosage form (any six).
 - (6) Explain : Bandages in brief.
- (c) Answer any **two** : **10**
- (1) Give construction and working of orificemeter.
 - (2) Derive an equation of q-line.
 - (3) Discuss : Sutures and ligatures in detail.
 - (4) Explain : History of Indian Pharmacopoeia.
 - (5) Describe: Classification of crude drugs in detail.
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