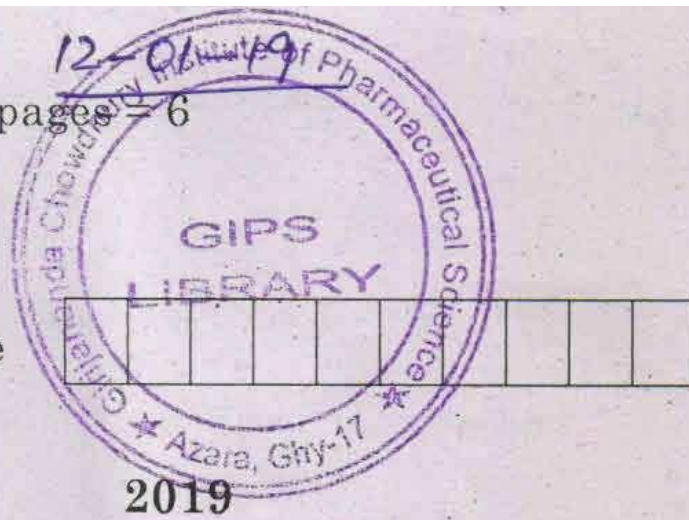


Total No. of printed pages = 6

PY 132303

Roll No. of candidate



2019

B.Pharm. 3rd Semester End-Term Examination

BASIC ENGINEERING — I

(Old Regulation)

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer questions No. 1 and any six from the rest.

1. Multiple choice questions. Answer ALL. (10 × 1 = 10)
 - (i) Molybdenum alloy of carbon steel improves
 - (a) Strength at elevated temperature
 - (b) Low temperature properties
 - (c) Hardness
 - (d) Toughness
 - (ii) A suitable conveyer for unpleasant and injurious materials is
 - (a) Belt conveyer
 - (b) Pneumatic conveyer
 - (c) Screw conveyer
 - (d) Chain conveyer

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(iii) Identify the organization that provides guidelines for Safe and healthy working condition in industry

- (a) American society of testing materials
- (b) Indian Standards Association
- (c) OSHA
- (d) Indian Meteorological Society

(iv) Humid heat is

- (a) Heat carried by unit mass of dry air and associated vapour
- (b) Heat required to raise one unit of temperature of a mixture of dry gas and associated vapour
- (c) It is the temperature difference of moist air when measured at rest
- (d) Heat released at dew point by a mixture of dry gas and associated vapour

(v) As per the Kozney-Carman Equation, a 10% change in porosity can produce

- (a) 2-fold change in rate of filtration
- (b) 3-fold change in rate of filtration
- (c) 4-fold change in rate of filtration
- (d) 10-fold change in rate of filtration

- (vi) When the deposited solids offer high resistance to flow of liquid, the choice of centrifuge is,
- (a) Short cycle automatic batch centrifuge
 - (b) Continuous horizontal centrifuge
 - (c) Perforated basket centrifuge
 - (d) Non-perforated basket centrifuge
- (vii) A filter useful for the preparation of particulate free solutions for parenteral and ophthalmic uses is
- (a) Leaf filter
 - (b) Cartridge filter
 - (c) Meta filter
 - (d) Drum filter
- (viii) Choose the correct crystallizer for thermolabile substance
- (a) Agitated batch crystallizer
 - (b) Krystal crystallizer
 - (c) Vacuum crystallizer
 - (d) Swenson walker crystallizer

- (ix) Example of centrifuge with sedimentation principle
- (a) Non-perforated basket centrifuge
 - (b) Short cycle automatic batch centrifuge
 - (c) De Laval clarifier
 - (d) Both (a) and (c)
- (x) Formation of methane from carbon takes place in one of the following types of corrosion, identify it
- (a) Oxygen concentration cell
 - (b) Hydrogen embrittlement
 - (c) Graphite corrosion
 - (d) Fretting corrosion
2. (a) What do you mean by fluid statics and fluid dynamics?
- (b) Derive an equation to calculate pressure difference between any two layers of liquids at rest.
- (c) Explain the principle and construction of Venturimeter with a neat diagram. (2 + 5 + 8)
3. (a) What do you mean by humidity and wet bulb temperature?
- (b) What are the step wise events in refrigeration cycle?
- (c) Explain the mechanism and approaches of dehumidification. (2 + 5 + 8)

4. (a) Define crystal habit and crystal hydrate.
(b) Discuss solubility curves and their usefulness.
(c) Explain the working principle, construction and uses of Krystal crystallizer with a neat diagram. (2 + 5 + 8)
5. (a) Discuss the theory of centrifugation. Give few applications of centrifugation in pharmaceutical fields.
(b) Explain the principle, construction and working of Cartridge filter. Write its advantage, disadvantage and uses. (7 + 8)
6. (a) What are different types of pump used in transportation of liquids? How the reciprocating pump works?
(b) Give details about various fans and blowers for handling of gases. (6 + 9)
7. (a) Explain different approaches to tackle corrosion in pharmaceutical industries. (10 + 5)
(b) Give the properties and applications of different types of glass.
8. Discuss in details any TWO of the following : (2 × 7.5)
(a) Fire hazard
(b) Air conditioner
(c) Valves.

9. Explain any TWO of the following with relevant drawings and equations : (2 × 7.5)

(a) Reynold's experiment

(b) Theory of crystallization

(c) Theory of corrosion.
