



BBH-003-001109 Seat No. _____

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

July - 2021

IC.P-101 : Industrial Chemistry

Faculty Code : 003

Subject Code : 001109

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 No.1 carries 20 marks.
- (6) Question No.2 & 3 carry 25 marks each.

1 Answer the following questions. 20

- (1) Simple distillation is also called as _____ distillation.
- (2) Azeotrope is _____ boiling mixture.
- (3) Pall ring is an example of packing material.
True/False ?
- (4) The volatility of solvent in absorption should be _____.
- (5) Kestner long tube evaporator is also known as _____.
- (6) In Extraction, recoverability should be high so _____
amount of solvent required.
- (7) Extraction is more expensive than distillation.
True/False ?
- (8) Unit operation means only _____ changes are taken
place.
- (9) Give full form of B.T.U.
- (10) Enlist fundamental quantities.

- (11) Give CGS unit of Mass flow rate.
- (12) Fuel is _____ substance.
- (13) Input=Output is true for _____ state condition.
- (14) _____ fuel burns with clinker formation.
- (15) _____ has given organic origin of petroleum.
- (16) Components of petroleum are separated by _____ distillation column.
- (17) _____ is used as catalyst for platforming process.
- (18) Carbonization of coal gives coal tar, coal gas & _____ as product.
- (19) Fe_2O_3 is used for extraction of _____ metal.
- (20) Denatured alcohol contains _____ with ethanol.

2 (a) Answer any Three : **6**

- (1) Draw only diagram of flash distillation.
- (2) Define the term 'absorption' with example.
- (3) Explain material balance of mixing with rectangular block diagram.
- (4) Give advantages of liquid fuel.
- (5) Enlist types of crude oil on the basis of residues obtained after distillation.
- (6) Give examples of ores used for extraction of different metals.

(b) Answer any Three : **9**

- (1) Write a note on steam distillation.
- (2) Give any three characteristics of ideal packing.
- (3) Explain material balance of drying with rectangular block diagram.
- (4) Give disadvantages of gaseous fuel.
- (5) Write a note on Girbotols's process.
- (6) Write short note on magnetic separation technique of ore.

- (c) Answer any Two : 10
- (1) Discuss continuous distillation with rectification.
 - (2) Explain classification of fuel in detail.
 - (3) Centrifuge is fed with a slurry containing 25% solids by weight and wet solids obtained after filtration are analyzed to contain 8% moisture by weight and filtration is found to contain 200 ppm solids. If centrifuge machine produces 100 kg per desired wet product and quantity of slurry to be handled is 5000 kg per batch calculate
 - (i) The time required for filtration and slurry.
 - (ii) Loss of solids in filtration per batch.
 - (4) Explain in detail : Fractional distillation technique for crude oil.
 - (5) Explain Dubb's process for liquid phase thermal cracking.

- 3 (a) Answer any Three : 6
- (1) Draw only diagram of climbing film evaporator.
 - (2) Enlist various factors affecting selection of solvent for extraction.
 - (3) Define : (a) Mole% (b) Normality
 - (4) Define : (a) Weight% (b) Kg atom
 - (5) Define : Fuel
 - (6) Write products obtained from cellulose.

- (b) Answer any Three : 9
- (1) Give any four applications of evaporation.
 - (2) Explain spray towers in brief.
 - (3) Discuss mole fraction in detail.
 - (4) Write a note on fuel.
 - (5) Explain in brief : beehive oven.
 - (6) Explain manufacturing of nitrocellulose.

(c) Answer any Two :

10

- (1) Explain sieve, bubble cap and valve trays with neat diagram.
- (2) Discuss short tube evaporator with schematic diagram.
- (3) Write a detailed note on derived quantities.
- (4) Explain carbonization of coal by horizontal retort.
- (5) Explain manufacturing of paper in detail.
