

SEAT No. _____

[44]



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SARDAR PATEL UNIVERSITY

S.Y. B.Sc. Industrial Chemistry SEMESTER – III

EXAMINATION -2022

Chemical Process Principles & Engineering Materials

SUB CODE: US03CICH21

DATE: 15/11/2022

DAY: Tuesday

TIME: 10.00 AM TO 01.00 PM

TOTAL MARKS: 70

Q.1 Choose the correct answer.

[10]

- (1) Excess reactant is in excess than
 - (A) Stoichiometric requirement
 - (B) Theoretical requirement
 - (C) Both (a) and (b)
 - (D) None
- (2) Material balance calculation is based on
 - (A) Law of conservation of energy
 - (B) Law of conservation of mass
 - (C) Both (a) and (b)
 - (D) None of these
- (3) Limiting reactant is in _____ amount than stoichiometrically required
 - (A) excess
 - (B) Less
 - (C) stoichiometric
 - (D) none of these
- (4) Molal humidity is the ratio of
 - (A) moles of water vapor/moles of liquid
 - (B) moles of water vapor /moles of dry air
 - (C) Weight of water vapor/moles of dry air
 - (D) None of the above
- (5) The adsorption which is reversible is
 - (A) Mechanical adsorption
 - (B) Chemical adsorption
 - (C) Physical adsorption
 - (D) Electrical adsorption
- (6) The process in which amount of moisture is increased in atmosphere is called.
 - (A) Humidification
 - (B) Dehumidification
 - (C) Evaporation
 - (D) Drying
- (7) The organic synthetic polymer is _____.
 - (A) PVC
 - (B) Cellulose
 - (C) starch
 - (D) ceramic
- (8) Clay contains mainly
 - (A) Alumina
 - (B) Silica
 - (C) Both a and b.
 - (D) Lime
- (9) The main constituent of safety glass is.
 - (A) CaCO_3
 - (B) PbO
 - (C) Vinyl plastic
 - (D) Boron
- (10) The main constituent of glass is.
 - (A) CaO
 - (B) SiO_2
 - (C) Al_2O_3
 - (D) Boron

- Q.2 Answer the following.(attempt ten) [20]
- (1) Write the important of material balance calculation.
 - (2) Explain batch process and continuous process.
 - (3) Write some examples of unit operation & unit process.
 - (4) Define Sensible heat, Latent heat of vaporization.
 - (5) Explain Limiting air.
 - (6) Explain spontaneous combustion.
 - (7) Write in brief about Crystal structure.
 - (8) Write brief about macrostructure.
 - (9) Give the advantages of glazing in ceramics.
 - (10) Write about type of glass.
 - (11) Manufacturing of Portland cement with wet process.
 - (12) Write about types of cement.
- Q.3 Prove that for gaseous mixture Pressure % =Volume % = Mole %. [10]
- OR
- Q.3 List and explain different method used to express the composition of mixtures and solutions. [10]
- Q.4 (A) Derive the equation of first law of thermodynamics for steady state steady flow process. [05]
- (B) Differentiate between Physical Adsorption and Chemical Adsorption. [05]
- OR
- Q.4 (A) Write different step used to solve energy balance process. [05]
- (B) Write notes on: Ideal gas temperature scale [05]
- Q.5 (A) Explain Material science as a subject. What are its uses to an engineer? [05]
- (B) Manufacturing of white ware. [05]
- OR
- Q. 5 (A) Write about glazing in ceramics. [05]
- (B) Write about Crystal structure and macrostructure [05]
- Q. 6 (A) Manufacturing of Portland cement with wet process. [05]
- (B) Write about types of cement. [05]
- OR
- (A) Give the Classification of glass. [05]
- (B) Write the manufacturing of glass. [05]

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