

(151)

Date: 29-11-2012

Time: 2.30. - 5.30 p.m

M.Marks: 70

Q.1 Answer the following multiple choice question

(8)

- i) The primary igneous rocks gave clays on
- (a) pressing
 - (b) weathering
 - (c) sintering
- ii) The firing of drying ceramic produces
- (a) beautiful wares
 - (b) Hardened wares
 - (c) nonporous ware
- iii) The pore shape of materials can be determined
- (a) Gas adsorption
 - (b) mercury porosimetry
 - (c) pyknometry
 - (d) kerosene infiltration
- iv) Isostating pressing of clays produces
- (a) Wear resistant components
 - (b) High strength components
 - (c) High Modulus components
- v) Silicon atom has great affinity for
- (a) silicon
 - (b) carbon
 - (c) oxygen
- vi) Glass ceramics are partially glassy and partially
- (a) ceramic
 - (b) multicrystalline
 - (c) transparent
- vii) Translucent glass contains minimum
- (a) 99.9% silica
 - (b) 99.6 % silica
 - (c) 100% silica
- viii) Fire clay refractory are
- (a) amorphous
 - (b) natural occurring
 - (c) synthetic

Q.2 Answer any seven of followings

(14)

- i) Explain different types of ceramics
- ii) What is the basis of classification of silicates?
- iii) Differentiate between chain structure of polymers and ceramics
- iv) Explain laminated Glasses
- v) Differentiate between lead and borosilicate glass
- vi) Differentiate between ceramic bond and refractory bond.
- vii) Explain thermal shock resistance of refractories.
- viii) Explain different types of porosities
- ix) Explain underlying principal of template method for activated carbon synthesis
- x) Explain the characteristics of raw material to be used for synthesis of activated carbon

Q.3(a) Explain the formation of kaolinite clay from primary igneous rocks, e.g. Feldspar.

(6)

(b) Explain different types of shaping methods for ceramic wares. Explain any two of them.

(6)

Or

(b) Explain thermal properties of ceramics.

Q.4(a) Describe the terms, (i) ordered and disordered carbon (ii) Coal tar Pitch & petroleum

(6)

Pitch (iii) Green Cokes & calcined cokes.

(b) Outline processing of Industrial carbons.

(6)

Or

(b) Describe various methods for synthesis of activated carbon from natural and synthetic raw material

Q.5(a) Why has normal glass a low tensile strength? Outline three methods of increasing the strength of glass.

(6)

(b) Discuss the composition and characteristics of (a) soda lime glass, (b) lead glass, (c) borosilicate Glass, (d) 96% glass, (e) pure silica glass, (f) optical glass.

Or

(b) Differentiate among glass, ceramics and glass ceramics. Devise a method to synthesize glass ceramics.

Q.6(a) Discuss the salient feature of silica-alumina phase diagram. What conclusions of practical significance can be drawn from this diagram.

(6)

(b) Define ceramic bond. How does it affect refractoriness?

(6)

Or

(b) Discuss the characteristics and uses of (a) silica (b) oxide & carbide, (c) magnesite refractory.

—X—