



Name :

Roll No. :

Invigilator's Signature :

**CS/B.TECH (CT)/SEM-6/CT-603/2010
2010**

WHITEWARES – II

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :

10 × 1 = 10

- i) Which of the following is a low expansive phase ?
 - a) Mullite
 - b) Corundum
 - c) Cordierite
 - d) None of these.
- ii) Spray drying is essential for the manufacture of
 - a) refractory brick
 - b) tiles
 - c) HT-insulator
 - d) none of these.
- iii) Glaze body is advisable to be fired in
 - a) oxidizing atmosphere
 - b) reducing atmosphere
 - c) vacuum
 - d) none of these.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. Write on the manufacturing of wear resistance ceramics.
3. Explain selection criteria of dryers.
4. Discuss the different oxidation and decomposition reactions during firing of whiteware product.
5. What are the characteristics of kiln furniture materials used in ceramic industries ? Write the different technical names of kiln furniture.
6. Compare the single fast firing wall tiles over double stage firing in Indian scenario.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Process is set as Fresh : return :: 40 : 60. By operator's mistake ratio is changed to 60 : 40. According to you, what problem may occur at the drying stage ? Discuss. Porosity is observed after firing. What are the possible causes for it ? How will you overcome this ? Discuss causes and remedies of yellow core defect. Lamination crack is observed on pressed sample. What are the probable reasons for this ? Write the actions required to overcome this. $3 + 5 + 4 + 3$



8. Write the characteristics of electrical porcelain. Write the composition of body and glaze. Write the manufacturing process of porcelain along with firing schedule. Why is reducing atmosphere needed ? What do you mean by bio-compatibility ? Discuss about ceramic materials for dental porcelains. $1 + 2 + 7 + 1 + 1 + 3$
9. What do you mean by fast firing tiles ? What are the raw materials used for manufacture of fast firing tiles ? Give a flowchart for the manufacture of fast firing tiles in industry. Discuss the firing details. $2 + 3 + 6 + 4$
10. What is the speciality of cordierite based kiln furniture ? What are the raw materials used for manufacture of cordierite body ? Discuss the firing details of cordierite body mentioning $\text{MgO} - \text{SiO}_2 - \text{Al}_2\text{O}_3$ mole ratio. Why mullite-cordierite composition has special industrial interest for selecting kiln furniture ? $2 + 2 + 7 + 4$
11. Write short notes on any *two* of the following : $2 \times 7 \frac{1}{2}$
- a) Densification of clay-talc mixture
 - b) Role of wollastonite and Talc in manufacture of wall tiles
 - c) Zircon porcelain.
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