



Name :

Roll No. :

Invigilator's Signature :

CS/B.TECH (CT)/SEM-6/CT-603/2012
2012
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 from the following :

10 × 1 = 10

- (i) Spring back action is important while shaping during
 - a) slip casting process b) turning process
 - c) die making process d) pressing.
- (ii) Dunting occurs during
 - a) heating
 - b) cooling
 - c) reducing soak
 - d) oxidizing soak.
- (iii) Reducing firing is done to
 - a) increase viscosity of glassy phase
 - b) decrease viscosity of glassy phase
 - c) mature a body
 - d) none of these.



- (iv) Working mould is made with
 - a) Gamma Plaster of Paris
 - b) Beta Plaster of Paris
 - c) Alpha plaster of Paris
 - d) Gypsum.
- (v) Aspect ratio is related to
 - a) Sintering
 - b) Nucleation
 - c) Grain growth
 - d) Vitrification.
- (vi) Which of the following is an example of Kiln furniture ?
 - a) Mullite
 - b) Rutile
 - c) Cordiorite
 - d) None of these.
- (vii) Vitreous sanitary ware has close porosity in the order of
 - a) less than 0.5 %
 - b) less than 10%
 - c) 4 to 5 %
 - d) greater than 10 %
- (viii) LMT kiln furniture means
 - a) High strength but less mass kiln furniture
 - b) Low thermal expansion kiln furniture
 - c) Low porosity kiln furniture
 - d) None of these.
- (ix) Monoporosa is
 - a) Single stage fast firing wall tiles
 - b) Single stage slow firing wall tiles
 - c) Double stage fast firing wall tiles
 - d) None of these.
- (x) Talc shows
 - a) Wider firing range of bodies
 - b) Narrow firing range
 - c) Constant firing temperature
 - d) None of these.



GROUP – B

(Short Answer Type Questions)

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

2. Write short note on Spark plug insulator.
3. Differentiate oxidation and decomposition reactions during firing of whiteware products.
4. Discuss the role of wollastonite for manufacture of fast fired wall tiles.
5. Compare and contrast the single fast firing wall tiles over double firing in Indian scenario.
6. Write short notes on Low thermal mass kiln car.

GROUP – C

(Long Answer Type Questions)

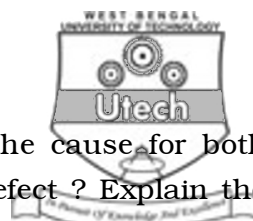
Answer any *three* of the following. $3 \times 15 = 45$

7.
 - a) Process is set as Fresh : return : : 46 : 60. By operator's mistake ratio is changed to 60 : 40. According to you, what problem may occur at the drying stage ? Discuss.
 - b) Porosity is observed after firing. What are the possible causes for it ? How will you overcome this ?
 - c) Discuss causes and remedies of yellow core defect.
 - d) Process is set with flocculated slip, but by mistake slip is deflocculated. What problem may occur and why ?

$3 + 5 + 4 + 3$

8. Justify necessity of dental porcelains. Briefly discuss different parts of a tooth mainly in context their composition, properties and functions. State composition of dental porcelains. Briefly discuss manufacturing process.

$2 + 5 + 3 + 5$



9. What way too fine particle size may be the cause for both yellow core defect as well as black core defect ? Explain the process of manufacture of working mould along with process of alpha and beta Plaster of Paris making. How does IRTE curve help to schedule a firing cycle ? Why is kiln draught negative at the start and slowly it goes to positive ? Why is humidity controlled at the beginning of drying process ?

4 + 4 + 2 + 3 + 2

10. What are the raw materials used for the manufacture of a cordierite body. How does cordierite fraction increase by adopting special firing technique. Why mullite cordierite composite is of special industrial interest for selection of kiln furniture. Why is cordierite body difficult to glaze ?

4 + 5 + 4 + 2

11. What is kiln furniture ? Write the different technical names of kiln furniture. Discuss the characteristics of superior quality kiln furniture used in ceramics industry. Discuss how densification temperature is related to clay-talc ratio for the manufacture of cordierite bodies. Why does silicon nitride bonded silicon carbide give satisfactory result than silicon carbide based kiln furniture ?

2 + 2 + 5 + 3 + 3

=====