	Uttech
Name:	(4)
Roll No.:	The Description and Explana
Invigilator's Signature :	

CS/B.Tech/CT (N)/SEM-5/CT-503/2012-13 2012

WHITE WARES TECHNOLOGY

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:

 $10 \times 1 = 10$

- i) In which period, there is a possibility of occurrence of crack is more
 - a) constant rate period
 - b) early falling rate period
 - c) at the leather hard point
 - d) end of falling rate period.
- ii) Spring Back Action is related to;
 - a) Slip casting
- b) Turning
- c) Pressing
- d) Trimming.

5231 (N) [Turn over

CS/B.Tech/CT (N)/SEM-5/CT-503/2012-13

				Ulech \		
iii)	For the glaze, type of feldspar used is					
	a)	Na-Feldspar	b)	K-Feldspar		
	c)	Ca-Feldspar	d)	Mixture of all these.		
iv)	Dunting occurs;					
	a)	during preheating	b)	during oxidation		
	c)	during reducing	d)	during cooling.		
v)	One of the purpose of reducing atmosphere in kiln is					
	a)	to shorten firing time				
	b)	to reduce maturing temperature				
	c)	c) to reduce viscosity of glassy phase				
	d)	all of these				
	e)	mixture of (a) & (b).				
vi)	Semiconducting glaze is applied on					
	a)	HT insulator	b)	Tiles		
	c)	Sanitary ware	d)	none of these.		
vii)	The main mineralogical phase in vitrified porcelain is					
	a)	Mullite	b)	Fused glass		
	c)	Alpha Alumina	d)	none of these.		
viii)	Which of the following act as a good opacifier					
	a)	Zircon	b)	Alumino silicate		
	c)	Zirconia	d)	none of these.		
ix)	Which of the following used as a coloring oxide in stair					
	a)	ZnO	b)	CoO		
	c)	Na ₂ O	d)	none of these.		

- x) If thermal expansion co-efficient of Body be α_b , then which of the following is essentially required for good fitting of glaze
 - a) $\alpha_b > \alpha_b$
- b) $\alpha_b < \alpha_b$
- c) $\alpha_b = \alpha_b$
- d) none of these.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.

 $3 \times 5 = 15$

- 2. Discuss the yellow core & Black core defects arise during firing of Whiteware body.
- 3. What is frit? Give a descriptive flow diagram for preparation of opaque frit.
- 4. Discuss the characteristics of superior quality kiln furniture used in ceramics industry. Write the different technical names of kiln furniture. 3+2
- 5. What do you understand by glaze opacifier? What are the criteria for selection of opacifier. 1+4
- 6. Discuss the different oxidation & decomposition reactions during firing of whiteware product.

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. Process is set with flocculated slip, but one day by mistake slip is deflocculated, what problem may occur & why?

3 + 5 + 4 + 3

CS/B.Tech/CT (N)/SEM-5/CT-503/2012-13

- 8. Explain with a sketch operation of an extruder. Write different reactions take place during heating & cooling of a white ware body. 10 + 5
- 9. Discuss different factors of drying. Show the shrinkagemoisture curve during drying. Discuss with schematic diagram formation of microstructure of a porcelain body. Show production of working moulds in a flow chart.

6 + 3 + 3 + 3

- 10. a) Discuss briefly the firing schedule of bone china body with mentioning the relevant phase diagram. What are the mineralogical phase present in fired bone china body. Discuss the cause of whiteness and translucency of bone china body. 4 + 2 + 2
 - b) Discuss the flow properties of glaze slip with respect to surface tension and viscosity of glaze slip. How glaze composition affect this property. 5 + 2
- 11. a) Discuss briefly the factors affecting the attachment of glaze on the body. Discuss the effect of composition on glaze formulation with adjusted thermal expansion of glaze and body. What is crazing and peeling. 2 + 2 + 4
 - b) Discuss the different steps for the manufacture of fast firing tiles. Why wollastonite is preferable used for the manufacture of fast firing tiles. 5+2