Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/B.Tech (CT)/SEM-5/CT-503/2010-11

2010-11

WHITEWARES – I

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) 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) Range of water content of the casting slip should be

a) 20 – 30 % b) 30 – 40 %

c) 40 – 50 % d) 50 – 60 %.

iii) Jiggering is related to

a) concave type of rotating plaster of paris mould

b) convex type plaster of paris mould

c) profile forming the inside

d) all of these.

iv) One of the purposes of filter pressing is

a) shaping b) removal of soluble salt

c) homogenisation d) to increase plasticity.

v) One of the purposes of reducing firing is

a) increase of viscosity of glassy phase

b) decrease of viscosity of glassy phase

c) both of these

d) none of these.

vi) The condition of proper spreading of glaze on the body is

a) Solid-liquid interfacial energy is low and solid-vapour interfacial energy is high

b) Solid-liquid interfacial energy is high and solid-vapour interfacial energy is low

c) Both solid-liquid interfacial energy and solid-vapour interfacial energy are high

d) None of these.

vii) Which of the following is the opacifier used in glaze slip ?

a) Rutile b) Magnestie

c) Albite d) None of these.

viii) Engobe is

a) Coating on glaze

b) Coating on the inner decoration

c) Layer in between body and glaze

d) None of these.

ix) The main mineralogical phase in vitrified porcelain is

a) Mullite b) Corundum

c) free quartz d) None of these.

x) Lead glaze always should be fritted due to

a) Toxic action of lead compound

b) High solubility of lead

c) Low solubility of lead

d) None of these.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. What are the factors for determination of firing schedule ?

3. Write short notes on Beneficiation of clay using hydrocyclone.

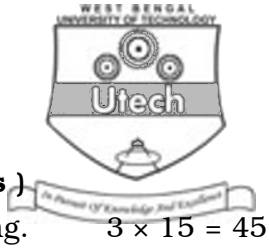
4. Write short notes on Heat of reaction of whiteware body.

5. What is the purpose of fritting ? Draw a descriptive flow-chart for the preparation of firt.

6. Define the following terms used in whiteware industry :

i) Bisque firing and Glost firing

ii) Mill addition.



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

7. Explain internal and external factors of drying. Show graphically variation of shrinkage and pore volume with progress of drying. What is the purpose of ageing ? 10 + 4 + 1

8. With a sketch, explain the operation of a de-airing extruder. Explain with schematic diagram the microstructure formation during firing. What are the purposes of extrusion ? 9 + 4 + 2

9. What are the raw materials used for manufacture of bone china body. Describer the firing schedule of bone china body with special reference to relevant phase diagram. What are the causes for whiteness and translucency of a fired bone china body ? What are the composition of fired bone china body ? 2 + 5 + 4 + 4

10. Discuss the role of viscosity and surface tension of glaze slip for its spreading uniformly. Explain how it is composition related. Why should glaze firing be done in reducing atmosphere ? 8 + 4 + 3

11. Write short notes on any *three* of following : 3 × 5

    i) Semiconducting Glaze

    ii) Glaze opacifier

    iii) Crazing and Peeling defects of glaze

    iv) Earthenware and Stoneware bodies.