

Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech/CT(NEW)/SEM-6/CT-603/2013

2013

CERAMIC COATING AND PROCESS CALCULATIONS

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.

Use separate answer sheets for Group-A and Group-B.

GROUP – A

(Answer Q. No. 1 and any *three* from Q. Nos. 2, 3, 4 and 5.

Also answer any *three* from Q. Nos. 6, 7, 8 and 9.)

1. Choose the correct alternatives for the following : $5 \times 1 = 5$
 - i) Which of the following is not a bounding oxide in enamel ?
 - a) CoO
 - b) NiO
 - c) MbO_2
 - d) ZrO_2
 - ii) To decrease the α value of enamel coating we decrease Na_2O content and substitute it with
 - a) CaO
 - b) K_2O
 - c) ZnO
 - d) B_2O_3
 - iii) Acid consumptions for pickling process for metal preparation can be reduced by using inhibitors to the extent
 - a) 0.1 % to 0.2%
 - b) 1% to 2%
 - c) 10% to 20%
 - d) 30% to 40%.

- 6328

- $$1 + 2^{1/2} + 2 + 2$$

(Answer any *one* from Q. Nos. 1 and 2 and
any *three* from the rest.)

- 5

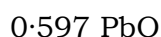
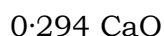
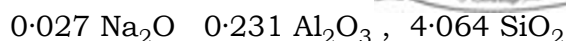
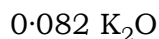
- 5

- 10

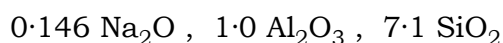
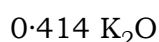
- $$6 + 4$$



5. The formula of a glaze is



Using flint, China clay, lead bisilicate, whiting and stone calculate the recipe. The stone has the following formula :



6. Calculate the batch composition of the glass from the following oxide composition :

SiO_2 — 71%, Na_2O — 17%, CaO — 9.5% and Al_2O_3 — 2.5%

The raw materials used are sand, lime-stone, soda-felspar, anhydrous soda ash. 25% cullet is added whose composition is as follows : SiO_2 — 74%, Na_2O — 16%, CaO — 9%, Al_2O_3 — 1%. 10

7. Calculate the oxide composition of the glass from the given batch :

Sand — 1000 parts, limestone — 184 parts, red lead — 1287 parts, As_2O_3 — 5 parts, soda ash (with 2% moisture) — 121 parts, salt-cake — 14 parts and KNO_3 (with 7% moisture) — 80 parts.

[Red lead — Pb_3O_4 , Salt-cake — Na_2SO_4] 10

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