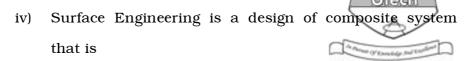
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<i>Name</i> :	• • • • • • •					
Roll No. :		•••••	• • • • • • • • • • • • • • • • • • • •		A dynamic (5' Exemple for Earl Explored	
Invigilato	r's Si	ignature :			•••••	
		CS/B.7		SEM	-5/CT-506/2011-12	
2011						
CERAMIC COATING						
Time Allotted: 3 Hours					Full Marks : 70	
	Th	e figures in th	e margin ind	dicai	te full marks.	
Candido	ates (are required to	give their o	เทรน	vers in their own words	
		a	s far as prad	ctica	ble.	
GROUP – A						
(Multiple Choice Type Questions)						
1. Choose the correct alternatives for the following:						
					$10 \times 1 = 10$	
i)	Whi	Which oxide is always present in enamel glass?				
	a)	CuO		b)	Cu $_2$ O	
	c)	Sb $_2$ O $_3$		d)	$B_{\ 2}\ O_{\ 3}$	
ii)	Number of oxides present in sheet glass almost is/are					
	a)	1-2		b)	5-6	
	c)	16-17		d)	none of these.	
iii)	Which one of the below mentioned is not fluxing agent?					
	a)	Borax		b)	CaF ₂	
	c)	Cryolite		d)	NbO $_2$.	

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- a) Ground coat and cover coat
- b) Substrate and coating
- c) Interface and coating
- d) Substrate and interface.
- v) In pickling process which of the following is not used?
 - a) HCl

- b) $H_3 PO_4$
- c) $H_2 SO_4$
- d) NH 4 Cl.
- vi) Inhibitors are added to the solution of mineral acid
 - a) (0.1 0.2)%
- b) (1-2)%
- c) (3-4)%
- d) (5-6)%.
- vii) Sand blasting or metal shot blasting is done at a temperature around
 - a) 2000°C
- b) 4000°C
- c) 8000°C
- d) room temperature.
- viii) A thinner coating improves thermal shock resistance.
 - a) True

b) False.

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- ix) Convex substrate surfaces need better matching with coating than concave substrate surfaces.
 - a) True b) False.
- x) Substitution of Na20 by B203 in coating increases thermal expansion coefficient.
 - a) True b) False.

GROUP - B

(Short Answer Type Questions)

Answer any *three* of the following.

- $3 \times 5 = 15$
- 2. What are the purposes of vitreous coating? State some uses of vitreous coating. 2 + 3
- 3. Write in short about Degreasing process.
- 4. What is inhibitor and what are the uses of it? State some advantages and disadvantages of using inhibitors. 2+3
- 5. What is Sand Blasting? State pre treatment line/sequence for aluminium hollow ware enameling. 2 + 3
- 6. State some advantages and disadvantages of Sputtering.

GROUP - C

(Long Answer Type Questions)

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

7. State differences between vitreous coating and glass ceramic coating. State the sources and important properties imparted in vitreous coating composition by PbO. What is neutralization process? What are the uses of electrolytes in enamel preparation? Describe the causes and remedies for the defect - fish scaling. 3 + 3 + 2 + 2 + 5

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- 8. What are the purposes of Ground Coat and Cover Coat? Name two oxides present in ground coat. State some opacifiers used in enamel preparation. Opacifiers are added in enamel in two ways. What are they? Explain. What is degree of opacification? What are the factors controlling the opacification? 3 + 1 + 1 + 5 + 1 + 4
- 9. What is Chemical Vapour Deposition? What is Physical Vapour Deposition? State Pickling process in brief. What are the properties to be controlled before steel enamelling?

3 + 3 + 6 + 3

10. Write short notes on any *five* of the following :

 5×3

- a) Causes and remidies of defect orange peeling.
- b) Ni-deposition
- c) Preparation of metal (steel) surface for enamelling
- d) Pretreatment line/sequence for copper ware enamelling
- e) Mechanism of inhibitors
- f) Objective of fritting
- g) Justification of essentiality of oxidising atmosphere for enamelling reaction.

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