[36]

SARDAR PATEL UNIVERSITY

No. of Printed pages: 2

M.Sc. 2nd Semester (Surface Coating Technology) Examination (CBCS) Friday, April 24th, 2015

PS02CSCT03: Coating Properties & Analysis of Coatings

Time: 10:30 am to 1:30 pm

Total Marks: 70

Sc.

- N.B. (1) Marks allotted to the question are on its RHS
 - (2) Illustrate your answers wherever necessary with the help of neat sketches & chemical equations

Q.1	Choose the correct option						
(1)	Pigment particles are grounded to 2µm	in	• Contraction of the second se	(1)			
	a) Enamels	b)	Stoving Enamels				
	c) Inks		Primer				
(2)	The yield value is observed in	flo	ow.	(1)			
	a) Pseudoplastic flow		Bingham				
	c) Thixotropic flow	d)	Plastic flow				
(3)	Which of the following will exhibit skinning phenomenon?						
	a) Long Oil Linseed Alkyd	b)	Short Oil Coconut based Alkyd				
	c) Chlorinated Rubber based	d)	All of the above				
(4)	Readings at gloss head is related to sheen.						
	a) 20°	b)	85° . The second se				
	c) 60°	d)	All of the above				
(5)	Setting is not observed in			(1)			
	a) Varnish	b)	Enamel				
	c) Semiglossy Paint	d)	Primer				
(6)	Which of the following is associated with adhesion of coatings						
	a) Grinding	b)	Settling				
	c) Dispersion	d)	Contact Angle				
(7)	Which of the forces are not operative in	adhesi	on of coating to mild steel substrate?	(1)			
Α.,	a) Keesom	,	Debye				
	c) London	d)	Ionic	(1)			
(8)	Pick the odd one with respect to corrosion resistance test of coatings						
	a) PAC	,	Scratch Hardness	a in th			
	c) Salt Spray	d)	Salt water immersion				
Q.2	Answer any seven of the following						
1	Write about Munsell color order system?						
2	Write about stoving film formation in alkyd-amino system and what are different stoving						
	schedule?						
3	Viscosity measurement of liquid paint by ford cup no.4?						
4	Give Mooney equation for viscosity of dispersed phase?						

5	How will	vou check	grinding on	Hegman gauge?

- 6 Compare characteristics of physical & chemical drying systems in tabular form?
- 7 Give Gloss rating of coatings according to PVC?
- 8 Hydrolytic degradation of coatings?
- 9 Thixotropic behavior in coatings?

Q.3(a)	What are the different methods of film formation? Write in detail about film formation in (thermoplastic system?					
(b)	Give detail account on film formation in Latex paints & UV curable coatings?					
(b)	What are different attribute of color? Explain CIE system for color matching?	(6)				
Q.4(a)	Give a detail account of adsorption theories of adhesion? How adhesion coating is tested for Cross Hatch adhesion test?	(6)				
(b)	Write note on following	(6)				
	i. Factors affecting flexibility of coating and how it is checkedii. Impact resistance test					
	OR					
(b)	Enlist different theories of Adhesion? Write about mechanical theory of adhesion is detail? How (adhesion coating is tested for Pull off adhesion test?					
Q.5(a)	Enlist different optical properties of coatings? Give detail account on gloss of water based & solvent based systems?					
(b)	Illustrate & explain the construction & working of cone & plate viscometer & Brookfield Viscometer?	(6)				
	OR					
(b)	What are different techniques to check wet film opacity? Describe in detail about Pfund cryptometer & contrast ratio method?	(6)				
	OR					
Q.6(a)	How corrosion of ferrous metal takes place? How coated panels are tested for Protection against corrosion (PAC) & Salt spray tests?	(6)				
(b)	Write about following defects and give their remedies					
	(1) Yellowing in white paint (2) Chalking, Checking & Cracking (3) Lifting & Blistering OR					
(b)	Write about three defects each occurring during Storage & Application of coatings?	(6)				