[64] SEAT No._____ SC

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SARDAR PATEL UNIVERSITY

M.Sc. 2nd Semester (Surface Coating Technology) (CBCS) Examination

Saturday, 23rd March 2019

Time: 10:00 am to 01:00 pm

Course No.: PS02CSCT23

Subject: Coating Properties & Analysis of Coating

Total Marks: 70

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

Choose the correct answer from the following

Q.1. 1 Which of the following is not a gloss head? (1)

(a) 20° (b) 50° (c) 60° (d) 85°

Q.1. 2 In cross-cut test 0 B= _____ area of removed (1)

(a) 15 – 35 % (b) less than 5% (c) 35 – 65 % (d) None of them

Q.1. 3 Which of the following is a rheological parameter? (1)

(a) Shear Rate (b) Flocculation (c) Shear Stress (d) a&c both

Q.1. 4 DFT can be estimated from _____ using the following equation. (1)

(a) DFT= (100 x %VS)/WFT (b) DFT=(WFT)/(100%VS)

(c) DFT= (WFT x %VS)/100 (d) DFT=(TC x %VS)/100

Q.1. 5 Pick the odd one with respect to Adhesion test of coatings (1)

(a) Cross Cut Test (b) Pull-off adhesion

(c) Impact Test (d) Scratch Test

Q.1. 6 Salt Spray Test is carried out using an ASTM _____. (1)

(a) D117 (b) B117 (d) D2247 (d) B2247

Q.1. 7 If viscosity in poise is 3.0 of varnish of specific gravity of 0.93. What is the viscosity in stoke? (1)

(a) 2.99 (b) 3.22 (c) 3.65 (d) 3.00

Q.1. 8 _____ type of wheel differing in terms of surface hardness is used for Floor coatings resistant to pedestrian traffic. (1)

(a) CS 10 (b) CS 17 (c) H 22 (d) H15

Q.2 Attempt ***any Seven*** Questions (14)

(a) A pigmented coating has coverage 20 sq mtr/lit. What is the WFT? At 50% NVV_T, What is DFT?

(b) Explain Kesternich test.

(c) Give Classification of Durability tests and Corrosion protection test methods?

(d) How fineness of grind is measured by Hegmann gauge?

(e) List and draw different types of mechanical deformation.

(f) List the factors and impacts by climate on coatings?

(g) List the physical and chemical causes for the adhesion of coatings to the substrate.

(h) Outline the different techniques of film formation.

(i) Write the phenomena of sagging.

(P.T.O.)

Q.3 a	Define Viscosity and Derive the unit in poise?	(6)
Q.3 b	Classify the Viscometer on accuracy of measurement and suitability for flow system. Discuss in detail about Falling Sphere Viscometer.	(6)
	OR	
Q.3 a	Explain thixotropic behavior in coating? Illustrate & explain the construction & working of cone & plate viscometer?	(6)
Q.3 b	Write about CIE theory of color measurement.	(6)
Q.4 a	Define VOC. Explain how it is determined.	(6)
Q.4 b	Give the importance of % Volume Solids and describe the three categories of Coatings based on %VS, explain in detail.	(6)
	OR	
Q.4 b	Explain factors on which drying time depends. How drying time of paint and coating is checked.	(6)
Q.5 a	What are the different hardness tests? Explain the Pencil Hardness Test?	(6)
Q.5 b	List the measurement methods for adhesion of coatings. Discuss any one.	(6)
	OR	
Q.5 b	Write about mechanical theory of adhesion of coating to the substrate.	(6)
Q.6 a	Give the detail about solution preparation and working of salt spray test.	(6)
Q.6 b	What is the important of the Q-Fog whetherometer in coating and explain it.	(6)
	OR	
Q.6 b	Write a note on Humidity Test.	(6)

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