Seat No.:_____ No. of Printed Pages: 02

[58]

SARDAR PATEL UNIVERSITY

VALLABH VIDYANAGAR

M.Sc. (3rd Semester) Surface Coating Technology Examination (CBCS), October 2016

PS03CSCT02: Technology of Paint Manufacturing

Time: 2:00 pm to 5:00 pm Tuesday, 25th October, 2016 Marks: 70

(08)

Q.1 Choose the correct answer from the followings: [01]

1. _____equipment has the higher mill base viscosity .
   a) HSDD b) Twin Shaft Dispersion
   c) TRM d) Basket mill

2. Pick the odd one with respect to the operation of Grinding? [01]
   a) Dyno mill b) Sand mill
   c) Basket mill d) None of these

3. Which of the following is the PVC for automotive clear coat glossy finish? [01]
   a) 10 % b) None of these
   c) 5 % d) 15%

4. Which grinding media shoud be used for grinding carbon black pigment ? [01]
   a) Glass b) Ceramic
   c) Metallic d) Aluminium

5. Which is the following equipment is used to prepare emulsion paint ? [01]
   a) Sand mill b) Attritor
   c) Bead mill d) HSDD

6. Pick the odd one with respect to the pigment dispersion of water based paint. [01]
   a) Viscosity of water b) Isoelectric Point
   c) Dielectric Constant of water d) Hardness of water

7. Which Size of Sand are used in Sand mill for grinding ? [01]
   a) 10-20 mesh b) 70-100 mesh
   c) 20-30 mesh d) 40-60 mesh

8. Which of the Following is involved during liquid paint manufacturing [01]
   a) PVC b) CPVC
   c) LCPVC d) f(PVC)

Q.2 Answer <u>any Seven</u> of the Followings: [14]

1) What is pigment lag or holdback in TRM ?
2) What is VOC and List the techniques to reduce VOC in Coating ?
3) Attritor accomplishes faster grinding as compare to Ball mill – justify.
4) Advantage and Disadvantages of Sand Mill.
5) Premixing is required for Sand mill. Justify.

6) Describe the implication of CPVC on Enamel hold out.

7) Explain Daniel wet and dry flow point.

8) Write a short note of solution of noise pollution in paint industry

9) Give the Effect of CPVC on porosity of the Film

Q.3 (a) What is stoving system. Give any two examples of the stoving systems. Formulate glossy black Stoving enamel by using short oil alkyd resin (60 % NV, Density = 0.98 Kg/L) and butylated MF Resin (60% NV, Density = 1.03Kg/L) as a binder and furnace black (S.G. = 1.8) as a Pigment. Alkyd resin to MF Resin ratio should be 4:1 on mass basis. Select suitable additive & solvents as needed. Total pigmentation should not be Exceed 10%, Calculate % NVM, Pigment binder ratio & Theoretical density of the Formulation. **[06]**

(b) What is PVC & CPVC? Discuss its impact on different mechanical & performances properties of pigmented coating. **[06]**

OR

(b) What is LCPVC & Give effect of Tg & Latex particle size on LCPVC. **[06]**

Q.4 (a) With a neat sketch illustrate construction and working of sand mill? Explain Sand mill is not a one tank operation. **[06]**

(b) With a neat sketch illustrate construction & working of the Basket mill? give its advantages & disadvantages. **[06]**

OR

(b) With neat sketch illustrate construction & working of the Twin shaft dispersion and muller machine? give its advantages & disadvantages. **[06]**

Q.5 (a) Enlist the Factors affecting grinding efficiency of Ball mill ? Explain any one in detail ? **[06]**

(b) Expalint the working of the TRM and base tack force. **[06]**

OR

(b1) Give classification of pigment dispersing equipment according to their grinding mechanism. **[03]**

(b2) Discuss about the influence of mill base rheology on dispersion efficiency in HSDD. **[03]**

Q.6 (a) Explain 5S System **[06]**

(b) Give the detail of Water and Soil pollution and its solution in paint industry? **[06]**

OR

(b) Give the importance of the TPM in paint industry. **[06]**