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SARDAR PATEL UNIVERSITY
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M.Sc. (1st Semester) Surface Coating Technology Examination (CBCS), October 2016

PS01CSCT02: Chemistry & Technology of Inorganic Pigments

Time: 10:00 am to 1:00pm

Tuesday, 25th October, 2016

Marks: 70

Q.1 Choose the correct Answer from the Followings:

- [08]
1. Synthesis iron oxides were produces as a byproduct of _____ [01]
 - a) Benzene
 - b) Aniline
 - c) Nitro benzene
 - d) Toluene
 2. Ultra marine blue shows extreme _____ [01]
 - a) Anti termite
 - b) Hygienic
 - c) Hydrophobic
 - d) Hydrophilic
 3. Which pigment used in formulations of 'Tie Coates' (PVB wash primer) [01]
 - a) Zinc Borate
 - b) Phosphosilicate
 - c) Zinc Tetroxychromate
 - d) Strontium chromate
 4. Calcined clay is used as partial replacement of TiO_2 due to _____ [01]
 - a) Void Formation
 - b) White Colour
 - c) Dispersion
 - d) Scattering
 5. Which Carbon black has a alkaline pH? [01]
 - a) Furnace black
 - b) Channel black
 - c) Thermal black
 - d) Acetylene black
 6. Which of the pigment is called direct inhibitors ? [01]
 - a) Chromates
 - b) Barytes
 - c) Borates
 - d) TiO_2
 7. Among following inorganic pigment which one is considered as non toxic. [01]
 - a) Chromates green oxide
 - b) Molybdate chromate
 - c) Lead chromate
 - d) None of Above
 8. Mixing of Cyan and magenta will gives which Colour ? [01]
 - a) Red
 - b) Blue
 - c) Black
 - d) Green

Q.2 Answer Any Seven of the Followings:

[14]

1. Justify Black paint are the most durable for exterior application among all.
2. Explain additive and subtractive color mixing.
3. Give the role of zinc tetroxychromate as wash primer.
4. Write the note on thermal black pigment.
5. Explain in detail about scattering as a function of particle size giving suitable example.

6. Which are the important physical factor affecting the oil absorption value ?
7. Which are the factor needed for the electrochemical reaction to corrosion occurs ?
8. Explain tinting strength of color pigment.
9. How lead chromate pigment ranges from prime rose yellow to scarlet orange ?

Q.3(a) What is hiding power ?how it measured ? Explain about effect of PVC and particle Size on hiding power. [06]

(b) Write about manufacture of TiO_2 by Chloride process. How it is advantages compare to sulphateprocess ? [06]

OR

(b) Explain Different Silicate extender. Give their composition. Explain in brief about china clay and mica. [06]

Q.4(a) Write a brief note about on channel black and furnace black. [06]

(b) Write in detail in aluminum pigment, What is leafing and non-leafing? How to determine the leafing value ? which are factor affecting leafing properties of aluminum pigment [06]

OR

(b) Write about chrome iron green and chromium oxide green pigment. [06]

Q.5(a) What is corrosion? Explain different mechanism for protecting the metal from corrosion by using coating. [06]

(b) What are the environmental considerations in selecting the inhibitors pigment? Write detail about borosilicate and phosposilicate as anti corrosive pigment. [06]

OR

(b) Give brief about nature and synthetic iron oxide [06]

Q.6(a) List methods of color quantification. Explain CIE in detail. [06]

(b) Write about Munshellcolour order system. [06]

OR

(b1) Write in detail about lithophone as a composite pigment [03]

(b2) Write about Zinc Oxide Pigment [03]

(2)