

Bachelor of Printing Engineering Examination, 2022
(2nd Year- 2nd Semester)
Ink Technology

Time: Three hours

Full Marks: 100

Group A

Answers question no 2 and any two questions.

1. (a) How alkyd resins are prepared? What are the functions of alkyds in printing ink? 4
 (b) What is thixotropy phenomenon of ink? How Degree of thixotropy can be measured? 5
 (c) Define iodine value of an oil. What are the properties that oil imparts in printing ink? Which classes of oils are generally used to make paste ink? Give one example of non drying oil. 6

2. (a) What happen if the yield value of ink is higher than the shear stress in the duct? 3
 (b) What happen if the index of refraction of pigment and varnish are widely different? 2
 (c) Why flexographic and gravure inks are supplied at a higher viscosity than required for the press by the ink makers? 3
 (d) What happen if the wax is too soluble in the ink? 2
 (e) What happen when first down ink has the lowest tack than the succeeding colors in multicolor printing? 2
 (f) Why plasticizer is used in ink? How plasticizer works? Give one example of plasticizer. 3
 (g) Which form of titanium dioxide is preferred for gravure inks and why? 2
 (h) How furnace black produced by faster vertical process is better than slow vertical process? 2
 (i) Write down a name of naturally occurring resin obtained from animal resource. 1
 (j) Why lithographic inks must be highly pigmented than other inks? 1
 (k) Which additive is used to promote dispersion of pigment? 1
 (l) Pigment that bleed into water are unsatisfactory for litho inks - Why? 1
 (m) What should be done if opacity is required in a transparent ink? 1
 (n) What is PMTA pigment? Give an example. 1

3. (a) Write down the uses of chelating agent. Why water based systems use these materials? 4
 (b) 'Incorrect use of surfactants can result in decreased adhesion to some substrates' -Justify. 4
 (c) What is crystallization in printing? How does it affect printing? 4
 (d) Write down the causes of poor adhesion of dried ink films on substrate. 3

4. (a) Why flushed pigments are called flushed pigment? Write down their advantages and disadvantages. 5
 (b) Why dilatants inks are not suitable for letterpress and offset process? 3
 (c) How chromophoric group functions in pigment? 3
 (d) Write difference between acid and basic dye. 4

Group B**Answer any one question.**

5. (a) Write down the advantages and disadvantages of Ball mill. 5
 (b) Describe briefly a typical cooking cycle that takes place during the manufacture of high gloss varnish used in a lithographic ink. 5
 (c) Write down the general procedure to get proper pigment dispersion. 5
6. Write short notes on: 5 x 3
 (a) Rotor-stator mixer.
 (b) Z-arm Mixer
 (c) Microflow Mill

Group C**Answer any one question.**

7. (a) What are the factors that affect drying time of an oleoresinous system? How drying time of the same can be tested? 5
 (b) What are the limitations of IGT printability tester? Explain the working of the equipment which is adopted to overcome those limitations. 5
 (c) Why xenon arc is used as a light source for lightfastness test of pigment? 1
 (d) How dispersion of ink can be measured? 4
8. (a) What is ink tack? Write down its importance in printing ink. What should be the tack range of sheetfed ink? How tack can be measured? 8
 (b) How Heat resistance and Deep-freeze resistance of pigment can be tested? 7

Group D**Answer any one question.**

9. (a) What is ink misting? What are the factors that affect ink misting? 4
 (b) What are the causes and effects of streaking problem in gravure printing? 5
 (c) Write short notes on (i) Feathering (ii) Pinholing and (iii) Pick up. 6
10. (a) What is carryover piling? Write down its causes and remedies. 5
 (b) What is set-off? Write down the factors which influences set-off? 5
 (c) What is tinting? Write down the causes and remedies of tinting. 5