

## B.E. PRINTING ENGINEERING THIRD YEAR SECOND SEMESTER – 2019

## INK TECHNOLOGY

Time: Three Hours

Full Marks: 100

Answer from all the groups

## GROUP- A

Answer any two questions

20 X 2 = 40

1. (a) What is paste ink? Why is it used in lithography printing? 4  
 (b) Briefly describe the thixotropic phenomenon of ink. 5  
 (c) Explain the role of surface tension in lithographic printing process. 5  
 (d) Why the finest ink film thickness is produced in offset lithography? 4  
 (e) Write the difference between pigment and dye staff. 2
  
2. (a) What are the factors that determine the choice of solvent in ink? Which solvents are generally used in Gravure ink? 4+4  
 (b) What is scumming? Write down the factors that influence scumming. 2+3  
 (c) What is oxidation drying process? Explain Briefly. 5  
 (d) Why plasticizers and waxes are used in printing ink? 2
  
3. Write short notes on: (any four) 5X4=20  
 (a) Quick Set  
 (b) Chill-roller marking  
 (c) Cavitation Mixer  
 (d) Bubbling  
 (e) Radiation Curing  
 (f) Bead mill
  
4. (a) What happen when first down ink has the lowest tack than the succeeding colors in multicolor printing? 5  
 (b) Write down the physical characteristics of resin and their influence on printing ink. 5  
 (c) What are the principle solvents used in Flexographic ink? 3  
 (d) What is the basic ingredients to formulate the paper ink? 5  
 (e) Why the silicon fluids is used as additives in screen ink? 2

[Turn over]

(2)

**GROUP - B**

**Answer any one question**

**20 X 1 = 20**

5. (a) Why water based Flexographic ink is advantageous in newspaper printing? 5  
(b) Explain the visco-elasticity behavior of viscous liquid. 5  
(c) Write the general characteristics of gravure ink. 3  
(d) Briefly discuss about the drying methods of Screen ink. 5  
(e) Why rheology modifier is used in ink? Give an example. 2
6. (a) What is meant by setting time? On which factors the duration of setting depend? 6  
(b) Write down the name of pigments used in Screen ink. 4  
(c) What should be the main features of pigments used in Gravure ink? 5  
(d) Explain any print problem occurs in Flexography due to printability faults. 5

**GROUP - C**

**10**

7. (a) How oleo-resinous varnish is manufactured? 5  
(b) What are the stages through which a printing ink is manufactured? Explain briefly. 5

**GROUP - D**

**15**

8. (a) How the light fastness of pigments can be tested? 5  
(b) How the particle size of pigment affects the properties of ink? Which methods is used to determine the pigment particle size. 5  
(c) How the soap and detergent resistance test is performed on pigment. Explain briefly. 5

**GROUP - E**

**Answer any one question**

**15 X 1 = 15**

9. (a) What is piling problem in Lithographic printing? Write down the causes and remedies of this problem. 5  
(b) What is mottle? Write down the causes and remedies of mottle. 5  
(c) What is set-off? Write down the factors which influences set-off. 3  
(d) Why antioxidants are used as additives? Give an example. 2
10. (a) What is feathering problem in screen printing? How these can be prevented? 5  
(b) What are the causes and effects of Streaking print problem in Gravure printing? 5  
(c) Write down the causes and effects of tinting print problem. 5