

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

I SEMESTER M.TECH. (PRINTING AND MEDIA TECHNOLOGY)

END SEMESTER EXAMINATIONS, NOV 2017

SUBJECT: PRINTING MATERIAL TECHNOLOGY [PME 5103]

REVISED CREDIT SYSTEM (18/11/2017)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- Missing data may be suitable assumed.
- 1A. i. What do you mean by the term 'glazed roller'? Describe the method of cleaning of glazed rollers.
 - ii. Explain the multistage bleaching of pulp. Mention its advantages.
- **1B. i.** Explain the mechanism of developing process used in silver based photographic films.
 - **ii.** What are direct photographic stencils? Discuss on the types of photosensitive materials used in direct photographic stencils.
- 1C. Explain the functions of the following ink additives and mention one example for each: a) Antioxidants b) Surfactants

[04+04+02]

- **2A. i.** Explain the drying mechanism involved in moisture set inks.
 - **ii.** Describe the synthesis of mixture of silver chloride and silver bromide photographic emulsion.
- **2B. i.** Describe the mechanism involved in the refining of pulp. Explain the effect of refining on the properties of paper.
 - **ii.** Discuss the characteristic features of steel rollers. Explain the two ways by which the ink striping problem of steel rollers can be avoided.
- 2C. Define the following properties of paper and mention the significance of each.a) Porosityb) Bursting strength

[04+04+02]

Reg. No.										
----------	--	--	--	--	--	--	--	--	--	--

- **3A. i.** Describe the structure of a photographic film with a neat diagram.
 - ii. Explain the security features provided bya) Bleeding inkb) Metameric pair ink
- **3B. i.** Explain the special factors that should be considered during printing on aluminium foils.
 - **ii.** Discuss on the various requirements of a press roller.
- 3C. Explain the application of the following chemicals in offset printing
 - a) Counter etching solution b) Deep etch developer
 - c) Deep etching solution d) Deep etch lacquer

[04+04+02]

- **4A. i.** Describe the flotation process used in the recycling of paper with a neat diagram.
 - **ii.** What are photographic reducers? Explain the mechanism of their action.
- **4B. i.** Give the composition of a dichromated colloid. Explain the effect of exposure on a dichromated colloid.
 - ii. Describe the method of electrochemical graining of litho plates.Mention its advantages.
- **4C.** Explain the types of blankets.

[04+04+02]

- **5A. i.** Explain the various parameters that decides the quality of a good stencil.
 - ii. Explain the function of a charge control agent in toners.
- **5B. i.** Name the ingredients of a fixing solution and write the function of each.
 - ii. Mention the various factors that should be considered during the selection of a suitable blanket.
- **5C. i.** Polyester film is a good base material for photographic films. Justify the statement.
 - **ii.** Mention the advantages of photopolymer plates.

[04 + 04 + 02]