



I SEMESTER M.TECH (PRINTING AND MEDIA TECHNOLOGY)

END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: PRINTING MATERIAL TECHNOLOGY [PME 5103]

**REVISED CREDIT SYSTEM
(26/11/2016)**

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Missing data may be suitable assumed.

- 1A.** i. Name the types of indirect photographic stencil and mention their characteristic features.
- ii. State and explain the following properties of ink:
- a) Viscosity b) Tack
- 1B.** i. Give the composition of a dichromated colloid and explain the effect of exposure on plate with dichromated colloids as light sensitive materials. Mention the factors which influence the extent of hardness introduced on exposure of such a plate.
- ii. Explain the following properties of paper and mention the two ways by which these can be improved:
- a) Porosity b) Dimensional stability
- 1C.** Explain the characteristics features, and mention the advantages and limitations (two each) of PVC rollers.

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- 2A.** i. Explain the purpose of graining and the electrochemical graining in the production of offset plates.
- ii. What is the principle involved in the chemical pulping process? Mention its advantages and limitations over mechanical pulping process.
- 2B.** i. Explain the any four essential properties of textile fibers.
- ii. Mention the basic requirements of the surface layer of blanket.
- 2C.** i. Aluminium is a good base material for lithographic plates. Explain why?
- ii. Mention one application each of the followings in the production of image carriers: Copper, Nylon, Buna-N, Silicone rubber

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- 3A.** i. Explain the mechanism of developing in the case of silver based photographic film.
 ii. Explain the features provided by the following security ink:
 a) Bleeding ink b) Coin reactive ink
 c) Photochromic ink d) Thermochromic Ink
- 3B.** i. Explain the types of photographic emulsions on the basis of their color sensitivity.
 ii. Explain the following properties of paper and mention their importance's:
 a) Ink absorbency b) Folding endurance
- 3C.** What do you mean by the term glazed roller? Explain the method of cleaning of a glazed roller.

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- 4A.** i. Explain the main requirements of a good ink pigment.
 ii. Explain the soft and hard calendaring process. What are the advantages of these processes?
- 4B.** i. Discuss with a neat diagram the structure of a silver based photographic film.
 ii. Describe the sulfite pulping process used in the manufacture of paper. Mention the advantages of this process.
- 4C.** i. An exposed silver based photographic film should be thoroughly washed with water after processing. Explain why?
 ii. Explain the two ways by which the ink stripping problem of steel rollers can be avoided.

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- 5A.** i. Describe the formulation of a typical Gold ink. Mention the limitations of metallic ink.
 ii. Explain the following phenomenon which occurs during the deinking of recycled pulp: a) Alkali darkening b) Acid shock
- 5B.** i. Explain the structure and functioning of an organic photoconductor with a neat diagram.
 ii. Name the constituents of a fixing solution and explain function of each.
- 5C.** Describe the paper making process.

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