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MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

A Constituent Institution of Manipal University

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

END SEMESTER EXAMINATIONS, NOV/DEC 2016

ADVANCES IN PRINTING MATERIAL TECHNOLOGY [PME 5104]

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. Explain the method of exposure and processing of a solid photo polymer plate.
- ii. Explain the following properties of paper and mention the two ways by which these can be improved:
- a) Porosity b) Dimensional stability
- 1B.** i. What is a Plastisol ink? Mention the advantages (six) of Plastisol inks.
- ii. Explain the characteristics features, and mention the advantages and limitations (two each) of PVC rollers.
- 1C.** i. Aluminium is a good base material for lithographic plates. Explain why?
- ii. A finished positive offset plate is usually applied with a prebake solution and then backed. Explain why?

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- 2A.** i. Explain the toner requirements.
- ii. What is a Carboset GA-33? Give its characteristic features.
- 2B.** i. Explain the purpose of graining and the electrochemical graining in the production of offset plates.
- ii. Explain the following properties of paper and mention their importance's:
- a) Ink absorbency b) Folding endurance
- 2C.** i. Drying of dark colored UV inks becomes difficult. Explain why?
- ii. The coating of vinyl Plastisol on nonporous substrate requires the use of adhesive primer. Explain why?

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- 3A.** i. Explain the structure and functioning of an organic photoconductor with a neat diagram.
- ii. What are the problems that occur during the printing on plastic films? Explain the ways by which these problems can be avoided?
- 3B.** i. Explain the method of processing of waterless offset plates.
- ii. What do you mean by the term glazed roller? Explain the method of cleaning of a glazed roller.
- 3C.** i. Mention one application each of the followings in the production of image carriers: Copper, Nylon, Buna-N, silicone rubber
- ii. Explain the two ways by which the ink stripping problem of steel rollers can be avoided.

[(02+02) + (02+02) + (01+01)]

- 4A.** i. Explain the composition of the photo-insolubilization coatings used in negative working plate and discuss the effect of exposure on such a plate.
- ii. Discuss the formulation and the characteristic features of waterborne inks made with Carboset GA-33.
- 4B.** i. Discuss structure and features of liquid photopolymer plates.
- ii. Mention the basic requirements of the surface layer of blanket.
- 4C.** Name the constituents of a fixing solution and explain the function of each.

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- 5A.** i. Name the types of indirect photographic stencil and mention their characteristic features and applications.
- ii. Explain the any four essential properties of textile fibers.
- 5B.** i. Explain the security features provided by the following inks
- a) Bleeding ink b) Coin reactive ink
- c) Photochromic ink d) Thermochromic Ink
- ii. Explain the cold and hot dipping methods for the application of vinyl Plastisol coating.
- 5C.** With a neat diagram explain the effect of overexposure in the case of offset plates.

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