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Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



III SEMESTER B.TECH (PRINT AND MEDIA TECHNOLOGY)

END SEMESTER EXAMINATIONS, NOV/DEC 2015

PRINTING MATERIAL SCIENCE I (PMT 2104) REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

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

- 1A.** With neat diagrams, explain air-knife coating and short-dwell-time coating. **3**
- 1B.** Explain the properties and applications of copper as image carrier. **3**
- 1C.** i) Explain dispersibility and specific gravity properties of pigments: **2+2**
ii) Explain the components of vegetable fibre.
- 2A.** Explain the features of the following additives: **3**
i) Anti-flocculation agents ii) Wax iii) Anti-setoff compounds
- 2B.** With diagrams, explain cleaning and flotation techniques used in paper recycling process. **3**
- 2C.** i) What are the components of a stop bath and fixing solutions used for processing photographic films? Explain their function. **2+2**
ii) Compare lignin removal and lignin bleaching approaches of bleaching.
- 3A.** Compare the manufacturing process and properties of carbon blacks. **3**
- 3B.** Explain how, type of ink and heat resistance affects the choice of a colorant. **3**
- 3C.** i) Discuss various steps involved in the manufacturing an offset blanket. **2+2**
ii) Explain the features of Strengthening agents and Coloring agents used as raw materials in papermaking.

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- 4A.** Explain sulphate process of pulping and mention 2 advantages and disadvantages each. **3**
- 4B.** Explain the features of the following types of solvents used in printing inks; **3**
- i) Alcohols ii) Hydrocarbons iii) Ketones
- 4C.** i) Explain the principle involved 4 water purification methods. **2+2**
- ii) Compare the working of ball mill and bead mill.
- 5A.** With neat diagram, explain cooking method of manufacturing oleo-resinous varnish. **3**
- 5B.** With neat diagram, explain the working of 3-roll mill with 2 advantages and disadvantages each. **3**
- 5C.** i) Explain the Refining and Debarking stages involved in paper pulping process. **2+2**
- ii) Explain the features of polyester-based and acetate-based films.