



**MANIPAL INSTITUTE OF TECHNOLOGY**

**MANIPAL**

*(A constituent unit of MAHE, Manipal)*

**IV SEMESTER B.TECH. (PRINT & MEDIA TECHNOLOGY)**

**MAKE-UP EXAMINATIONS, JUNE 2019**

**SUBJECT: PRINTING MATERIAL SCIENCE II [PMT 2202]**

**REVISED CREDIT SYSTEM**

**(13/06/2019)**

Time: 3 Hours

MAX. MARKS: 50

**Instructions to Candidates:**

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

**1A.** Discuss the features of the following papers;

- i) MICR paper      ii) Envelope paper      iii) Label paper

**1B.** Explain the importance and testing procedures for following ink properties;

- i) Pigment particle size      ii) Wet ink film thickness

**1C.** i) Define contact angle and with the help of neat sketch, explain how it can be used to find water resistance of a paper surface.

**[ 03 + 03 + 04 ]**

**2A.** Explain the two methods of manufacturing tin plate. List its 4 advantages.

**2B.** Explain the importance of adhesion of ink. Discuss the procedure of

- i) Scotch tape test      ii) Metal bending test.

**2C.** i) Explain different ways of increasing opacity and its consequences on paper.

- ii) Explain how to find hygroexpansivity of a paper.

**[ 03 + 03 + (02+02) ]**

**3A.** i) Define flash point of an ink. Explain how to test it.

- ii) Discuss the three ways of finding water resistance of ink on printed substrate.

**3B.** Discuss the features of following screen printing inks;

- i) Plastisol inks      ii) Glitter inks      iii) Discharge inks

**3C.** Define grain direction of a paper. Explain the 3 testing procedures used to find it.

**[ (1.5+1.5) + 03 + (02+02) ]**

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- 4A.** Explain how to test the following properties of an offset ink;
- i) Tack                      ii) Emulsification                      iii) Pigment bleeding
- 4B.** i) Discuss the two types of flexographic inks.
- ii) How much paper (in reams) in 60x80cm will be required for printing of 40,000 booklets in A4 size assuming that each booklet contains 24 pages?
- 4C.** i) Explain how to find stiffness of a paper.
- ii) Discuss the features of Mill board and corrugated board.

**[ 03 + (02+01) + (02+02) ]**

- 5A.** Explain cold-set and precipitation drying mechanism of ink.
- 5B.** i) Compare powder and liquid toners.
- ii) Find the weight of the reel, if the paper is of 110 GSM, wound into 10,000 layers, the width of the reel is 64 cm, outer diameter and inner diameters are 150cm and 30cm respectively.
- 5C.** i) Compare primer and protective coating.
- ii) With neat diagram, explain the process of dry lamination.

**[03 + (02+01) + (02+02) ]**