



III SEMESTER B.TECH. (PRINT AND MEDIA TECHNOLOGY)

END SEMESTER MAKE-UP EXAMINATIONS, DEC/JAN 2016-17

SUBJECT: PRINTING MATERIAL SCIENCE I [PMT 2104]

REVISED CREDIT SYSTEM

(06/01/2017)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

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

- 1A.** Describe the importance and features of the following in paper manufacturing:
- i) Debarking ii) Coloring materials iii) Yankee dryer
- 1B.** Explain the composition of black pigment. Compare different types of black pigments.
- 1C.** Describe 3 types of photographic films based on color sensitivity of emulsion.
- [03 + (01+03) + 03]**
- 2A.** Compare the following:
- i) Softwood & hardwood ii) Paper machine & cylinder machine
- 2B.** i) Explain the importance of the following in selection of colorant for printing ink manufacturing:
- a) Type of ink b) Specific heat resistance of ink
- ii) With diagram, discuss the construction and working of three-roll mill.
- 2C.** Explain the factors determining the fitness of secondary fibres for paper recycling.
- [04 + (02+02) + 02]**
- 3A.** Describe the features of the following components of printing ink:
- i) Mineral oil ii) Rosins iii) Hydrocarbons
- 3B.** Explain how cooking chemicals are recovered from black liquor after sulfate pulping.
- 3C.** i) Explain the properties of Nickel as an image carrier material.
- ii) Explain the composition of dampening solution with its function.

[03 + 03 + (02+02)]

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- 4A.** Explain the factors affecting printing ink formulation.
- 4B.** Explain various stages of De-inking process of printing papers in Recycling
- 4C.** Describe the features of various components of paper coating.

[05 + 03 + 02]

- 5A.** Explain the manufacturing process of paste ink by cooking method.
- 5B.** Explain the following additives used in printing inks:
- i) Plasticizers ii) Anti-settling agents iii) Gelling agents
- 5C.** i) Compare sulphate and sulphite process of chemical pulping.
- ii) Describe negative working plates. Explain the 3 types of photopolymer coatings applied on its surface.

[03 + 03 + (02+02)]