Reg. No.										

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

SUBJECT: ADVANCES IN PRINTING TECHNOLOGY [PME 5102]

REVISED CREDIT SYSTEM
(24/11/2016)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A. With a neat sketch explain the mechanism of ink transfer from offset printing plate to the substrate.

1B. i. Calculate the TWIV, if the fabric mesh of **440TPI** with thread diameter of **55µ** and fabric thickness of **48µ** is used for printing.

ii. Explain the surface mount technology used for screen printed PCBs.

1C. Explain the different types of sleeves used as image carriers for flexographic printing.

[04 + (02+02) + 02]

2A. With a neat sketch, explain hybrid printing systems combining conventional and Non-impact printing technologies

2B. Explain the effect of improper tensioning of fabric mesh on screen printing quality. Explain the working principle of mechanical tension meter and the techniques of tension measurement.

2C. Explain the pre-press workflow publication gravure with a neat flow diagram.

[04 + 03 + 03]

3A. Explain various methods of color registration techniques on multi-color web offset printing machines.

3B. Explain the Walker-Fetzko model for analyzing inking system of a multicolor offset printing press.

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3C. The gravure cylinder of **15″** in diameter, **95″** of length is electromechanically engraved at **40°** cell with cell wall at the maximum density is **12μ**. If a normal cell width is **325μ** when engraved at **45°** and the engraving speed of the machine is **5500 cells per sec**, find the total engraving time. Horizontal screen factor is **0.916.**

[04 + 04 + 02]

4A. Explain the steps in imaging using Thermofuse technology for direct imaging press.

4B. With the help of diagram, explain the process of creating gray values with inkjet printing processes.

4C. i. Describe the mechanical principle of flexo web presses with a neat diagram.

ii. Explain the components and working principles of displacement and steering guides used for controlling lateral positioning of webs.

[03 + 02 + (03+02)]

5A. With a neat sketch explain three types of drop on demand ink jet printing technology.

5B. Describe the effect of following parameters of liquid emulsion stencil on screen printing quality:

i. Stencil composition

ii. Exposure time

iii. Exposure lamp intensity

5C. i. Explain the importance of selecting anilox roller according to the screen ruling of the image used on flexo plate.

ii. Calculate the ink film thickness on paper substrate transferred from an anilox roll of **9BCM/in^2** via photopolymer plate. The ink transfer factor of anilox roll is **85%** and the percentage solids in the ink is **30%.**

[04 + 03 + 03]