Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

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A Constituent Institution of Manipal University

V SEMESTER B.TECH. (PRINT AND MEDIA TECHNOLOGY)
END SEMESTER EXAMINATIONS, NOV/DEC 2016

SUBJECT: COLOR ANALYSIS AND REPRODUCTION [PMT 3103]

REVISED CREDIT SYSTEM
(01/12/2016)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

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

1A. Explain color as an event. If green light reaches an object, give the six possibilities for color appearance of the object.

1B. Explain the following relationship and its significance

(i) Ink Trap and Color Sequence (ii) Ink Film Thickness and Dot Gain

1C. Explain the basic separation theory with a neat diagram.

If the printer resolution is 1400dpi and the image resolution is 140lpi, calculate the required halftone cell matrix to represent graphically the following halftones: 20%, 50% and 80%. Also represent them with the dot gains of 5%, 10% for highlight and shadow areas respectively. Assume halftone shape is square.

[03 + 03 + 04]

2A. Explain the two methods for measuring or comparing printed color with a reference color.

2B. Explain two file formats for web pages and two file formats for printed documents.

2C. Explain the Device-Independent Color Models. Describe the significance of Color Management Module. What is the purpose of Assigning and Embedding Profiles?

[03 + 03 + 04]

3A. Elaborate on working principle of the Rotary-Drum Scanners & Flatbed Scanners.

3B. Explain the logical reasoning behind selecting screen angles for process colors.

3C. Explain the following: (i) 20/20 Vision (ii) Visual acuity

(iii) Lateral Inhibition (iv) Adaptation

[03 + 03 + 04]

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4A. If the reference color has the L*a*b* value of 35,-65,50, which is an out of gamut color, suggest the best color engine and the most suitable rendering intent from the data given.

For the adobe color engine, L*a*b* values for perceptual is 35,-44,17, for saturation is 39,-46,18, for relative colorimetric is 37,-46,18 and for absolute colorimetric is 38,-38,16.

For the Microsoft color engine, L*a*b* values for perceptual is 35,-44,16 for saturation is 38,-46,18 for relative colorimetric is 36,-46,17 and for absolute colorimetric is 38,-38,17.

4B. Explain the four production problems influencing the sequence of process colors. Mention the recommended screen angles for

(i) 2 color jobs (ii) jobs with skin color predominates

(iii) 3 color jobs (iv) jobs with light green predominates

4C. Explain the three limitations in the process of creating profiles that you need to keep in mind. Define densitometry and explain four distinct types of reflective density measurements.

[03 + 03 + 04]

5A. Explain tristumulus values and its calculations. Also elaborate on chromaticity coordinates.

5B. Elaborate the following concepts :

(i) spot color (ii) grey balance (iii) tone reproduction

5C. Give the theory behind Neugebauer Equations. Give the four color version of Neugebauer equation developed by Hardy and Wurzburg for blue filter and green filter.

[03 + 03 + 04]