Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

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

END SEMESTER MAKE-UP EXAMINATIONS, DECEMBER 2019

SUBJECT: COLOR ANALYSIS AND REPRODUCTION [PMT 3103]

REVISED CREDIT SYSTEM

(27/12/2019)

Time: 3 Hours MAX. MARKS: 50

Instructions to Candidates:

- Answer **ALL** the questions.
- Assume the missing data.

1A. Explain the following color measurement concepts:
(i) Colorimetry (ii) Spectrophotometry (iii) Densitometry

1B. Explain with neat diagrams the color-matching experiment.

1C. Explain the principle of Under Color Removal and Gray Component Replacement.

[04 + 03 + 03]

2A. Explain the effect of Value in different Hues with suitable examples.
Explain Hue, Value and Saturation.

2B. Explain the theory behind Neugebauer Equations.
Give the four-color Neugebauer equation for blue filter and green filter.

2C. If the reference color has the L*a*b* value of 30,25,35, which is an out of gamut color, suggest the best color engine and the most suitable rendering intent from the data given below: For adobe color engine L*a*b* values for perceptual is 24,23,20, for saturation is 28,24,28, for relative colorimetric is 25,24,22 and for absolute colorimetric is 27,23,16. For Microsoft color engine L*a*b* values for perceptual is 23,24,20, for saturation is 28,25,28, for relative colorimetric is 25,23,22 and for absolute colorimetric is 27,23,15. *(Show all calculations)*

[04 + 03 + 03]

Reg. No.										

3A. Explain the four production problems influencing the sequence of process colors. Mention the recommended screen angles for

(i) Tritones jobs (ii) Jobs with skin color predominates

(ii) Duotones jobs (iv) Jobs with light green predominates

3B. Explain the following color systems : (i) Focoltone (ii) Trumatch

3C. Elaborate the following concepts :

(i) Proportionality failure (ii) Additivity failure (c) Gloss

[04 + 03 + 03]

4A. Explain the following:

(i) Metameric match (ii) Visual acuity of color

(iii) Color Names (iv) Memory Color

4B. Explain the logical reasoning behind selecting the screen angles for process colors.

4C. With suitable examples explain raster and vector computer graphics.

[04 + 03 + 03]

5A. Describe the Device-Dependent Color Models.

Explain the following Device Limitations (i) Gamut (ii) Dynamic Range

5B. Explain Electronic Color Separation and Desktop Color Separation.

If the printer resolution is 1200 dpi and the image resolution is 120 lpi, calculate the required halftone cell matrix to represent graphically the following halftones: 10%, 50% and 90%. Also, represent them with the dot gains of 15% and 10% for highlight and shadow areas respectively. Assume halftone shape is square.

5C. Explain the types of scanner and its basic elements.

[04 + 03 + 03]