MANIPAL INSTITUTE OF TECHNOLOGY
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SECOND SEMESTER M.TECH. (PRINTING AND MEDIA TECHNOLOGY)
END SEMESTER EXAMINATIONS, APR/MAY 2017
SUBJECT: COLOR MANAGEMENT SYSTEMS [PME 5202]
REVISED CREDIT SYSTEM
(22/04/2017)

Time: 3 Hours   MAX. MARKS: 50

Instructions to Candidates:

❖ Answer **ALL** the questions.

❖ Missing data may be suitably assumed.

1A. Explain two functions of V2 and V4 ICC profiles. Explain the four significant shortcomings of ICC V2 profiles.

1B. For a company logo red color with L*a*b* value 70,80,50 which was an out-of-gamut color for printing, the prepress had the following options while using CMS. Option #1 was with L*a*b* value 66,73,52; option #2 was with L*a*b* value 69,75,54; option #3 was with L*a*b* value 72,83,50; and option #4 was with L*a*b* value 68,84,47. Kindly suggest which option should be picked for the logo. Show all calculations on the answer sheet.

1C. Define CIE Standard observer. Explain the D series of illuminants with their spectral curves. Elaborate on Generic Profiles.

[03 + 03 + 04]

2A. Explain the significance of the color and brightness of the white point and black point for three types of devices used in the color management workflow.

2B. Explain the four laws of basic colorimetry. Explain Opponent Color Modulations.

2C. Define two types of color management workflow. Explain the five diverse issues facing the technical community in regard to standardization.

[03 + 03 + 04]

3A. Explain the ICC Profiles role as part of a Color Reproduction System in (a) Image Editing and (b) Rendering Issues

3B. With a neat labeled diagram explain the electromagnetic radiation as a spectrum of radiation. Explain the Anomalous Trichromacy with suitable example.

3C. Explain the Genesis of Color Management. What is the role of Assigning and Embedding Profiles? What is Conversion Data Loss?

[03 + 03 + 04]

4A. Name the primary 'two standards' for viewing conditions.
What are the two problems we face as a consequence of device dependency of color? Explain.

4B. Explain the concepts of Luminance Adaptation and Luminance Contrast.

4C. Define Visual Angle. With a neat labeled schematic diagram of the human eye, explain the functional photoreceptors for the mesopic vision.

[03 + 03 + 04]

5A. Explain Wien's displacement law with a neat diagram. Mention the Wien's formula and Rayleigh–Jeans formula.

5B. Explain the four different methods for handling out-of-gamut colors as defined by ICC specification. Give proper pictorial representation for each.

5C. Explain the four components of Swedish Natural Color System.

[03 + 03 + 04]