

**V SEMESTER B.TECH. MEDIA TECHNOLOGY**  
**END SEMESTER MAKEUP EXAMINATIONS, DECEMBER 2022**  
**SUBJECT: COLOR SCIENCE AND TECHNOLOGY [MED3151]**

Time: 3 Hours

MAX. MARKS: 50

1. What can you deduce from the following statements? 3  
(A) Unlike a sensation, a perception cannot be measured.  
(B) The connection between hue and its basic name isn't just a philosophical nuance, but may be one of the most important things to remember about color reproduction.
2. Explain (A) Metameric Pair (B) Illuminant Metamerism (C) Observer Metamerism (D) 3  
Metameric match
3. Appraise with a neat diagram on the Munsell Color System developed by Munsell in 1905 4  
as a teaching aid for art students. Also represent the munsell color 5R 4/6 on the Munsell atlas page.
4. Elaborate on the typical color-matching experiment, its working and then arrive at CIE 3  
tristimulus values X, Y, and Z.
5. Write a short note on (A) Trumatch 4-color matching system (B) Pantone Color Matching 3  
System
6. Which is the best sofa replacement among the four options available for the old sofa with 4  
color as the criteria.  
Old Sofa color 65, 50, -50 and new sofa options are :  
option #1 color 68, 47, -45                      option #2 color 64, 52, -52  
option #3 color 65, 54, -46                      option #4 color 63, 54, -48
7. Explain the four different methods for handling out-of-gamut colors. 3
8. Elaborate on the significance of (A) gloss (B) additivity failure (C) proportionality failure 3
9. Define CMM? When do you care about the CMM? Why do we need CMMs at All? 4
10. Explain the four distinct types of reflective density measurements with neat diagrams. 3
11. If the printer resolution is 1200dpi and the image resolution is 150lpi, calculate the 3  
required halftone cell matrix to represent graphically the following halftones: 15%, 35%, 50%, 75% and 95%. Also represent separately the highlights and midtones with dot gain of 10%. Assume halftone shape is square.

12. Write short note on the following optical properties of the printed ink films: 4  
(A) Transparency (B) Bronzing (C) Moire
13. "Guidelines, Specifications & Standards are standardizing options; but they have slightly 3  
different definitions." Justify with suitable examples. Shed some light on benefits to the  
company and customer of using standards.
14. Explain the relationship between the dot gain in tonal range to the ink & printing machine 3  
setup.
15. Explain the working of Under Color Removal and Grey Component Replacement 4