Ref no. EX/PRN/T/314/2017S

**B.PRINTING ENGINEERING**
**3RD YR 1ST SEMESTER SUPPLEMENTARY EXAMINATION,2017**
**Color Science and Engineering**
**FULL MARKS-100**
**TIME-3 Hours**

**Answer any five questions:**
**(Each question carry equal marks)**

1. Differentiate between: 5*4=20
a) Subsampling and downsampling b) Spot color and process color c) Absolute colorimetric rendering intent and relative colorimetric rendering intent d) Light adaptation and dark adaptation

2. Draw the flowchart of color management system and describe it. 20

3. a) What are the color reproduction objectives? b) Describe two steps of sampling? c) What are the factors on which tonal reproduction depend on? d ) What is contouring?.e) How the resolution and bit depth affect image quality?
5+ 4+ +5+2+4=20

4. a)How chromaticity coordinate is found from tristimulus values? b) What are the significance of these? C) How Lab Value is obtained from tristimulus values? d) What are the significance of Lab.e) Describe Munsell notation. f) Compare Munsell system with CIE system of color.
2+2+4+4+4+4=20

5.a) Find out the halftone density of a 75% dot area cyan patch when the solid density is 1.54, using Murray Davis equation. b) Find out the halftone density of the same patch using Yule Nielson equation. C) Why the results are different? d) Deduce Yule- Nieslson to find out dot area. 4+4+2+10=20

6.a) Deduce Neugebauer equation. b) Find out the red, green and blue density of a patch having 20% cyan, 46 % magenta and 62% yellow from Table 1.
The density of the single color patches are3 as follows:

Table1

| | Dr | Dg | Db |
|---|---|---|---|
| Cyan | 0.98 | 0.45 | 0.16 |
| Magenta | 0.21 | 1.05 | 0.29 |
| Yellow | 0.06 | 0.07 | 1.00 |

15+5=20

7. Write short notes on : 4*5=20

a) Metamerism b) Look-up table c) Gamma d) Press Calibration e) Gray component replacement

8.a) What are the different causes of proportionality failure? b) State any two of them. c) State Kubelka Munk theory to find out reflectance from absorption coefficient and scattering coefficient. d) What are the implications of Kubelka Munk theory of color mixing?

4+10+2+4= 20