M.TECH IN PRINTING ENGG. & GRAPHIC COMMUNICATION

2ND SEMESTER EXAMINATION 2018

ADVANCED COLORIMETRY

Time: 3Hours   Full Marks 100

Answer any five questions:

1. How whiteness index are measured? How yellowness index are measured ? c)How fluorescence is measured with single monochromator source? d)The R,G,B values of the following colors are as follows:

	R	G	B
Color A	240	11	14
Color B	05	07	05
Color C	20	250	14
Color D	07	11	241
Color E	190	205	05

Predict the colors and describe what kind of emotions are expressed by these colors for industrial colorimetry?   2+2+6+ 10=20

2. a)What is image quality assessment (IQA)? b) What are the application scope of IQA? c)What are the objectives of IQA? d)What are the different methods of IQA? e)Describe any one of the framework of IQA method with a neat sketch. f) How the image entropy can be calculated? g)Define Difference mean opinion score for images.   2+2+ 2+4+6+2+2=20

3. a)Give the expressions of following parameters with respect to image quality assessment:
i) Z-score ii) Mean square error
b) What are the advantages and disadvantages of MSE? c) Define Peak signal to noise ratio. d)What are the parameters of structural similarity index and how these are calculated –Show the three parameters with a neat diagram? e) Define Multiscale SSIM.   4 + 6+ 2+6+2=20

4.a) How Modulation transfer function can be differentiated from subjective quality factor. b) Write down the expression for SQF. c) How noise is measured? (any one method) d) What are the factors affecting noise. e) How the flexo printing problems are measured? f) Define Shannon capacity.

4+2+2+4+ 6+2=20

5. Describe the following color appearance problems and how are they measured: 5*4=20

a) Mottle in gravure b) Dot gain in offset c) Ghosting in offset d) Picking in gravure

6. a) What are the factors affecting device characterization of display? b) What are the steps of printer profiling? c)   What are the color temperature setting for display calibration? d) Draw the gamma curve where

i) Shadow details will be lost. ii) Highlight details will be lost e) Compare different display characteristics with the following curves:

Figure 2
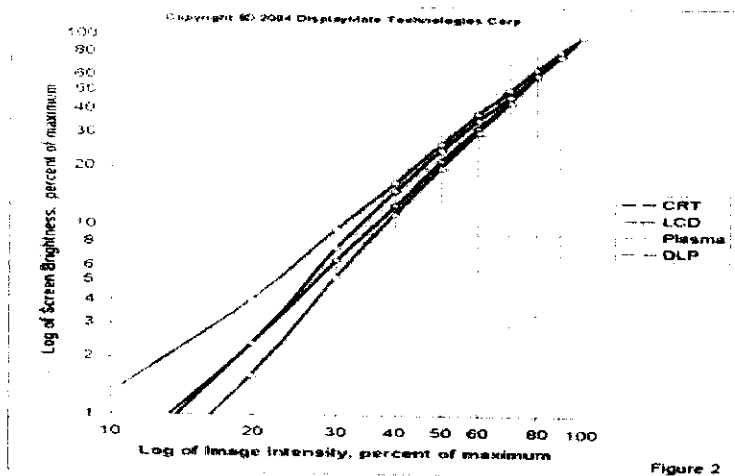
4+4+4+4+4=20

7.Differentiate between

4*5=20

a)   reflected spectral radiance factor and luminescence spectral radiance factor.
b)   Split complementary and double complementary color scheme
c)   median cut algorithm and popularity algorithm
d)   d/0 geometry and 0/d geometry of integrating sphere.
e)   Spectrophotometer and colorimeter

8.Write short noted on

4*5=20

a) HDR Photography b) Dynamic contrast c)Vignetting d) Lens flare e) Color Moir