M.TECH IN PRINTING ENGINEERING & GRAPHICS COMMUNICATION EXAMINATION, 2017

(1ST Year , 1st Semester)

RADIOMETRY

Time : 3 Hrs.   Full Marks: 100

Group-A

1. Answer any <u>Five</u> of the following questions: (5x5=25)

   a) What is the difference between PIN Photodiode and Avalanche Photodiode?

   b) Explain with diagram: Energy band

   c) What is Black body radiation? Explain it with example.

   d) What is Spectrum? What is the difference between radiometry and photometry?

   e) Explain: Snell's Law

   f) What is the range of visible spectrum? Describe Electromagnetic Spectrum with diagram.

   g) Explain with diagram: Photo-detector and Photo-Transistor.

Group-B

2. Answer any <u>Three</u> of the following questions: (10x3=30)

   a) Photometric units and Radiometric units   (5+5)

   b) Solid Angle

   c) Key attributes of a black body

   d) Wien's Displacement Law

   e) Plank's Distribution Law

Group-C

Answer any <u>Three</u> of the following questions: (15x3=45)

3. What is Dark current noise? Describe the working principal of Avalanche Photodiode. Explain advantage and disadvantages of Avalanche Photodiode.

(2+8+5)

4. When a metal plate is exposed to monochromic beam of light of wavelength 400nm, a negative potential of 1.1v is needed to stop it. Find the threshold wavelength for the metal. 15

5. i) Discuss different types of vision with diagram.

   ii) Explain: Stephen Boltzmann Law and Kirchhoff's Law (5+(5+5))

6. i) Discuss Photoelectric effect with circuit diagram.

   ii) Explain: Forward Bias & Reverse Bias (10+5)

7. How do we measure the Lambertian sources? What is Spectrophotometer? Define Beer Lambert's Law.

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