

In the name of God

Advanced Biomedical Photonics

Chapter 1

Question (delivery time)

1. Report about Ibn al-Haytham's studies about the nature of vision (Open)
2. Why are clouds white, and sometimes gray? (Oct. 13, 2015)
3. Show that how one can derive the Henyey-Greenstein function (Oct. 20, 2015)
4. Describe the different analytical and numerical solutions to the equation of Radiation Transport (Open)
5. What is the potential problem (artifacts) of Pesedu-random algorithm? (Oct. 20, 2015)
6. Assume a 4 digit number and can you determine that how many repetition are necessary to truncate this series of random number by Middle-square method? (Oct. 20, 2015)
7. Can you present a new method that generates a random number? (Open)
8. Show that step size of photon movement in Monte Carlo method can be written as $s = -\frac{\ln(\xi)}{\mu_t}$ (Oct. 20, 2015)
9. In the Monte Carlo method, what is your solution to photon beam of finite size (like Gaussian beam)? (Oct. 27, 2015)
10. Assume a semi-infinite phantom with optical parametric μ_a , μ_s and n , and a point source is located on the surface of phantom. Please calculate the irradiance $\varphi(r, \omega)$ at points A and B.

