



B.E (Full Time) DEGREE END SEMESTER EXAMINATIONS, MAY 2013

PRINTING TECHNOLOGY

SECOND SEMESTER

PH 8205 - PHYSICS FOR PRINTING TECHNOLOGY  
(REGULATIONS 2008)

4

Time: 3hr

Max Mark: 100

Answer All Questions

Part – A (10x2=20 Mark)

1. Two soap bubbles of radii  $R_1$  and  $R_2$  are in vacuum. If they coalesce under isothermal conditions, what is the new radius of the bubble if  $\sigma$  is surface tension of soap solution?
2. What is meant by dynamic surface tension?
3. A drop of water of radius 0.01 m is falling through a medium whose density is  $1.21 \times 10^3 \text{ kg/m}^3$  and viscosity is  $1.8 \times 10^{-5} \text{ Nsm}^{-2}$ . Find the terminal velocity of the drop.
4. Distinguish between streamline and turbulent flow.
5. Mention any four advantages of CD over other data storage devices.
6. What is photorefractive effect?
7. What is magneto-optic effect?
8. What are photodetector performance parameters?
9. What is two dimensional Fourier transform?
10. What is scaling property of Fourier transform?

Part – B (5x16=80 Mark)

11. Explain with theory construction and working of a LCD.
  12. a) i) Define surface tension (3)  
ii) With theory explain how surface tension of a liquid is measured by capillary tube method. (13)
- (or)
- b) i) Write a note on surfactants (4)  
ii) Explain the principle of force tensiometer. (4)  
iii) Describe Du ring method of measurement of surface tension. (8)

13 a) i) Describe an Ostwald viscometer and how is it used to measure viscosity of a given liquid. (12)

ii) What is the importance of viscosity in printing? (4)  
(or)

b) What are the various components of ink-jet printer and explain how an ink-jet printer works.

14 a) i) What are the different types CDs used for data storage ? (6)

ii) Explain with theory how data is written and read in a CD. (10)  
(or)

b) What is holography? Explain the construction and reconstruction of a hologram.

15 a) Explain with theory how 'AND' and 'OR' logic gates are operated using LCLV. (or)

b) Describe Abbe-Porter experiment and explain its significance in Fourier filtering.