

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E/B.Tech - AERO/BIN/BME/BTE/CHEM/
CIVIL/M&P/MECH

Title of the paper: Engineering Physics

Semester: II

Sub.Code: 6C0018(2006/2007)

Date: 06-12-2008

Max. Marks: 80

Time: 3 Hours

Session: AN

PART – A

(10 x 2 = 20)

Answer All the Questions

1. Explain Joule Thomson effect.
2. What are the requirements of a good refrigerant?
3. State Stress-Optic law.
4. Mention the advantages of photo elastic method.
5. What are the properties of ultrasonics?
6. Give the merits and demerits of Piezo-electric oscillator.
7. What is fluoroscopy?
8. List the uses of nuclear medicine.
9. What are Bravais lattices?
10. Obtain the packing factor of Body Centered Cubic structure.

PART – B

(5 x 12 = 60)

Answer All the Questions

11. (a) Discuss the Proust Plug experiment.
(b) Explain the cascade process for the liquification of gases.
(or)
12. (a) Describe the adiabatic demagnetization process. (5)
(b) Explain and Principle and working of Refrigeration. (7)

13. (a) Discuss the effect of a stressed model under a plane polariscope. (8)
(b) Explain Isoclinic and Isochromatic fringes. (4)
(or)
14. (a) Explain the production of plane, circularly and elliptically polarized light.
(b) Discuss the detection of plane, circularly and elliptically polarized light.
15. (a) Describe the construction and working of magnetostrictive oscillator. (7)
(b) Write briefly on the different modes ultrasonic scanning. (5)
(or)
16. (a) Give the theory of ultrasonic Doppler Blood Flow meter. (5)
(b) Explain the ultrasonic Doppler Blood Flow meter with block diagram. (7)
17. (a) Discuss in detail X-ray radiographic process in diagnosis. (8)
(b) Compare X-ray radiography with fluoroscopy.
(or)
18. (a) Give a brief account on nuclear medicine.
(b) Discuss Gamma ray Camera.
19. (a) Define Miller Indices. Obtain the expression for inter-planar spacing in cubic crystal. (3 + 7)
(b) Draw the (021) plane of cubic crystal. (2)
(or)
20. (a) Show that the axial for Hexagonal Close Packed structure is 1.633 and calculate its packing factor.

(b) Calculate density of iron. Given: Atomic weight = 55.8. Atomic radius of Face Centered Cubic iron is 0.123 nm. Avogadro number = 6.023×10^{26} /k mol.