

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E/B.Tech - AERO/BME/M&P/MECH

Title of the paper: Applied Physics - II

Semester: II

Sub.Code: 3ET203B-4ET203B-5ET203B

Date: 22-05-2009

Max.Marks: 80

Time: 3 Hours

Session: FN

PART - A (10 X 2 = 20)

Answer ALL the Questions

1. A Pitot tube having a coefficient of 0.98 is used to measure the velocity of water at the centre of the pipe. Calculate the velocity when the stagnation pressure and static pressure are 6m and 5m respectively.
2. Define coefficient of viscosity and derive its dimension.
3. Mention the effects of CFCs on the environment.
4. Write a short account on the production and measurement of low temperatures.
5. What is meant by photo elasticity?
6. Give the importance of stress optic law.
7. What is Q value of a nuclear reaction? On this basis distinguish between nuclear fission and fusion.
8. Why are neutrons moderated to thermal speeds in nuclear reactors?
9. Bring out the essential difference between X-ray radiography and fluoroscopy.
10. How do you get a better nuclear image from a given tracer radioisotope?

PART – B

(5 x 12 = 60)

Answer All the Questions

11. Give the theory of venturimeter and derive an expression for the rate of flow of liquid through a pipe line.
(or)
12. Derive an expression for the rate of flow of a viscous fluid through a capillary tube.
13. Describe Joule – Thomson effect and give its theory. How has it been utilized in the liquefaction of gases?
(or)
14. Discuss with necessary theory the method of adiabatic demagnetization for producing very low temperatures. How are such temperatures measured on absolute scale?
15. With necessary theory, describe the effect of stressed model in a plane polariscope.
(or)
16. Describe the photo elastic bench along with its components drawing a model of photo elastic bench.
17. Discuss the various conditions to be satisfied for sustained nuclear reactions.
(or)
18. Describe the construction and working of a nuclear reactor. When is the reactor said to be critical?
19. Give an account on the recording of the heart sounds by phonocardiography. Mention some its applications.
(or)
20. Explain the method of obtaining nuclear image of an organ of human body using gamma ray camera.

