Class Test - I
Engineering Physics
Branch: EE, CHE

Time 1 Hrs   **Max Marks 10**

Note: Attempt All Question, all question carry equal marks

11. A soap film of refractive index 1.33 is illuminated by white light, in the reflected pattern, two consecutive dark fringes of wavelengths 5400A° and 5500A° are found overlapping. Calculate the thickness of the film. (If angle of incidence is 30°). {CO4}

12. What is the length of and orientation of a rod of length 7 meter in a frame of reference which is moving with a velocity 0.8c in a direction making angle 45° with the rod. {CO1}

13. What is Rayleigh criterion of resolution? Also find out resolving power of Grating. {CO4}

14. Light consists of two wavelengths 5500A° and 3700A°, which is incident normally on a grating surface. If there are 15000 line per inch on grating surface, calculate the separation of two lines in cm in first order spectrum. Given that a lens of focal length of 120 cm is used to observe the spectrum on screen.{CO4}

15. A man weighs 50 kg on earth, when he is in a rocket in flight, his mass is 50.5kg as measured by an observer on earth. calculate speed of rocket. .{CO1}

CLASS TEST - II
Subject – Engg. Physics (KAS-201T)
(EE & CH)

         Max Marks-10

Time-1hr

NOTE- Answer all Questions.

Q1. What are the Einstein's Coefficients? Derive Einstein relation.   (2)   (CO-3)

Q2. A step index fiber is made with a core of index 1.52, a diameter of 29 μm and a fractional difference index of 0.007. It is operated at a wavelength of 1.3 μm. Find (i) the fiber V- number (ii) the number of modes the fiber will support.   (2)   (CO-3)

Q3. Describe the construction working and energy level of Ruby Laser.   (2)   (CO-3)

Q4. Derive the Schrodinger wave equations. What conditions must a wave function fulfil? (2)   (CO-4)

Q5. Explain the Compton Effect. Derive an expression for the Compton shift.   (2)   (CO-4)

Class Test -II
Engineering Physics
Branch: EC

Time 1 Hrs   **Max Marks 10**

1. Derive equation for a particle in a three dimensional box.(3) CO3

2. Derive equation for Compton shift .(3) CO3

3. A body of mass 10gm is moving with velocity 110 m/sec, find the wavelength associated with it. (2) CO3

4. a neutron is confined a nucleus of size 10^{-14} m meter across. Calculate its energy.(2) CO3

(Roll No. to be filled by candidate)										

B. TECH.
SECOND SEMESTER THEORY EXAMINATION, 2021-22
KAS-201T
ENGINEERING PHYSICS

Time: 03 Hours   **Max. Marks: 100**

Note:

- Attempt all questions. All questions carry equal marks. All symbols have usual meaning

1. Attempt any **TWO** parts of the following: 2×10   CO1
    a. (i) Explain the basic postulates of special theory of relativity.
         (ii) A π-meson has a mean life of 2×10^{-8} S when measurement at rest. How far does it go before decaying if moving at a speed of $0.99c$?
    b. Discuss the Galilean transformation for position, velocity and acceleration.
    c. Explain the concept of space and time in the special theory of relativity. Prove that the physical law holds good for Lorentz transformation.

2. Attempt any **TWO** parts of the following: 2×10   CO2
    a. State Maxwell equations for the EM-field and obtain the wave equation in free space.
    b. What is equation of Continuity? Derive an equation of simple plane electromagnetic wave in free space.
    c. What is Poynting vector? How is the Poynting theorem derived from Maxwell equation? Explain Poynting theorem..