

Enroll No

K.E.Society's
Rajarambapu Institute of Technology, Rajaramnagar
 (An Empowered Autonomous Institute, affiliated to SUK)
Unit Test -I (2025-26)

Q.P. Code
UT3477

F. Y. B. Tech-Civil, Electronics & Telecommunication, Mechanical, Mechatronics, Robotics and Automation

Course Code: SH1314

Course Name: Engineering Physics

Day & Date: Wednesday, 15/10/2025

Time: 11.45 am to 12.45 pm

Max Marks- 25

- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures in rounded () brackets within the question, indicate the scheme of marking for respective part of the question, whereas, figures in the first right column indicate total marks for that whole question.
 - 3) CO is the index number of the Course Outcome statement.
 - 4) The Bloom's taxonomy level (BL) for 1,2,3,4,5 and 6 is remember, understand, apply, analyze, evaluate and create respectively.
 - 5) Assume suitable data if necessary.
 - 6) Use of non-programmable calculators is allowed

			Marks	BT Level	COs
Q.1	A	Differentiate between free and forced oscillations.	4	L2	CO1
		OR			
		Illustrate the concept of resonance and explain the effect of damping on resonance.			
	B	Using the equation of displacement in damped oscillator explain overdamped (2 marks) and critically damped oscillations (4 marks).	6	L3	CO2
	C	Quality factor of sonometer wire is 5000, the wire vibrates at a frequency of 500 Hz. Find the time in which the amplitude decreases to $1/e^2$ times its initial value.	3	L3	CO3
Q.2	A	State any six conditions for getting steady state interference.	3	L1	CO1
	B	Derive the condition of constructive interference for reflected rays of light in thin film of uniform thickness. (ray diagram: 2 marks, derivation: 4 marks)	6	L3	CO2
		OR			
		Derive the condition of destructive interference in reflected rays of light in wedge shaped film . (ray diagram: 2 marks, derivation: 4 marks)			
	C	A thin film of refractive index 1.3 and thickness 3×10^{-7} meter is illuminated by the light making an angle 60° , the reflected light forms the constructive interference, then what will be the wavelength of light?	3	L3	CO3

