



<b>Section C: Long Answer Type Questions</b> <b>Attempt any 01 out of 04 questions.</b>		<b>BL</b>	<b>CLO</b>	<b>Marks (20)</b>
1.	Discuss damped harmonic oscillator. Obtain the differential equation of damped harmonic vibrator and derive its general solution.	BL4	CLO4	20
2.	Differentiate between angle of twist and angle of shear. Deduce an expression for the couple per unit twist required to twist a uniform solid cylinder of length $l$ and radius $r$ .	BL4	CLO2	20
3.	What do you understand by reduced mass? How is the two-body problem reduced to a single-body problem?	BL4	CLO3	20
4.	Find expression for the acceleration of the centre of the mass a body rolling down an inclined plane without slipping. A sphere of mass 2.5 kg and diameter 1 m rolls without slipping with a constant velocity of 2 m/s. Calculate its total kinetic energy.	BL3	CLO1	20

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