Printing Page(s) : 1 **Paper Code :DSC-103**

Roll No. | | | | | | | | | | |

B.Sc. (PCM)-3

1st Year Examination, Calendar Batch 2017

Physics-1(Mechanics)

Time : 3 Hours] *[Max. Marks : 100*

***Note**. Attempt any **five** questions. Each questions carry equal marks.*

Q.1 Define the angle of twist and angle of shear? Deduce the expression for the couple required to twist a uniform cylinder.

Q.2 What is Maxwell's needle? Describe and explain how Maxwell's needle can be used to determine the modulus of rigidity of the material of wire.

Q.3 What is the basic postulates of special theory of relativity? Deduce Lorentz transformation equations from them.

Q.4 Derive Stoke's formula for the velocity of a small sphere falling through a viscous liquid, using dimension method. Hence obtain the expression for the terminal velocity.

Q.5 Define gradient of a scalar field. The gradient of a scalar field is a vector, explain. Give its physical significance.

Q.6 Define the curl of a vector field? Give the physical significance expression vector field. Derive an expression for it.

Q.7 What are Kepler's laws of planetary motion? Show how by introducing the idea of reduced mass, a two body problem under central forces can be reduced to a one body problem.

Q.8 What is field? What are scalar and vector fields? Give one example of each.


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