Roll Number		

B

INDIAN SCHOOL MUSCAT
FIRST PERIODIC TEST

PHYSICS

CLASS: XI Sub.Code: 042 TimeAllotted:50mts.

02.12.2018 Max.Marks: 20

GENERAL INSTRUCTIONS:

(i) All questions are compulsory.

(ii) Question numbers 1 to 5 are very short answer type questions, carrying one mark each.

(iii) Question numbers 6 to 8 are short answer type questions, carrying two marks each.

(iv) Question numbers 9 to 11 are also short answer type questions, carrying three marks each.

(v) Use of calculators is not permitted. However, you may use log tables, if necessary.

1. State the theorem of parallel axes for moment of inertia. 1
2. Particle of mass 0.4Kg is moving in a circle of radius 0.5m with frequency $4/\pi$ S^{-1}. Find its angular momentum. 1
3. While turning the page of book, we usually apply force perpendicular to the plane of the page at the farthest end. Explain why? 1
4. Which physical quantity is represented by the product of moment of inertia and angular acceleration? 1
5. Explain why the speed of whirl wind in a tornado is alarmingly high? 1
6. Three balls of masses 1, 2 and 3Kg respectively are arranged at the corners of an equilateral triangle of side 1m.What will be the M.I. of the system about an axis through the centroid and perpendicular to the plane of triangle? 2
7. Define and explain the principle of moments. 2
8. Derive an expression showing the relation between angular momentum and moment of inertia of a rigid body. 2
9. What will be the duration of the day, if the earth suddenly shrinks to 1/64 of its original volume but mass of earth remains unchanged? Given moment of inertia of the earth = 2/5 MR^2. 3
10. Define moment of inertia. Write its SI units and dimensional formula. State the factors on which moment of inertia of a body depends. 3
11. Derive an expression for the total kinetic energy of a rolling body. Write an expression for total kinetic energy of a rolling solid sphere whose mass m and radius r. 3