



INDIAN SCHOOL MUSCAT

FIRST PERIODIC TEST

PHYSICS

CLASS: XI

Sub. Code: 042

Time Allotted: 50 mts.

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 perpendicular axes for moment of inertia. 1
2. Particle of mass 0.2Kg is moving in a circle of radius 1m with frequency $2/\pi \text{ S}^{-1}$. Find its angular momentum. 1
3. Why is it more difficult to revolve a stone tied to a large string than a stone tied to a smaller string? 1
4. Which physical quantity is represented by the product of moment of inertia and angular velocity? 1
5. Standing is not allowed in double decker bus. Why? 1
6. Three identical spheres each of radius R, placed touching each other on a horizontal table. Locate the position of the centre of mass of the system. 2
7. Define radius of gyration. Write its SI unit and dimensional formula. 2
8. Derive the relation between torque and angular momentum. 2
9. If the earth were suddenly contract to half of its present size, by how much would the day be decreased? Given moment of inertia of the earth = $2/5 MR^2$. 3
10. Derive an expression of centre of mass of a two particles system. 3
11. Derive an expression for the rotational kinetic energy of a body. State the factors on which rotational kinetic energy of a body depends. 3

End of the Question Paper