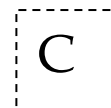


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## INDIAN SCHOOL MUSCAT FIRST PERIODIC TEST

### PHYSICS

CLASS: XI

Sub.Code: 042

Time Allotted: 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. Which physical quantity is represented by the product of moment of inertia and angular Velocity? 1
  2. Why is it more difficult to revolve a stone tied to a large string than a stone tied to a smaller string? 1
  3. Explain why the speed of whirl wind in a tornado is alarmingly high? 1
  4. State the theorem of perpendicular axes for moment of inertia. 1
  5. 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
  6. Define radius of gyration. Write its SI unit and dimensional formula. 2
  7. Derive the relation between torque and angular momentum. 2
  8. 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
  9. Derive an expression for the rotational kinetic energy of a body. State the factors on which rotational kinetic energy of a body depends. 3
  10. 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
  11. Define moment of inertia. Write its SI units and dimensional formula. State the factors on which moment of inertia of a body depends. 3

**End of the Question Paper**