Second Term Unit Test, 2016-17

Sub. : Physics

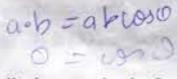
Time: 1:30 Hrs.]

Class - XI

[M. M.: 40

Instructions:

- (1) Attempt all questions.
- (2) Question Nos. 1-5 carry 1 mark each.
- (3) Question Nos. 6-10 carry 2 marks each.
- (4) Question Nos. 11-15 carry 3 marks each.
- (5) Question Nos. 16 and 17 carry 5 marks each.



- 1. If a . b = 0, then is it necessary that a & b be perpendicular to each other?
- 2. What is impulse? Write its dimensions also.
- 3. Why a cricketer while taking a catch moves his hands backwards?
- 4. Why do we slip on a muddy road?
- 5. A light & a heavy body have the same kinetic energy. Which one will have larger momentum?
- 6. If a = 5t + 2 find v. where a is acceleration & v is velocity.
- 7. If a=3i+4j-2k, b=2i-2j+k, find a-b, mod of a and mod of b.
- 8. State & prove work-energy theorem.
- 9. Find the maximum speed with which a car of mass 1000kg can take a corner of radius 20m, if $\mu = 0.5$.
- 10. State & prove conservation of momentum.
- 1). Prove that second law of motion is the real law of motion.
- 12. The moment of force facting at a point p is rxf, r = 3i + j 2k & f = i + j + k, find cross product of r & f.

- 13. A monkey of mass 40kg climbs on a rope which can with stand a max, tension of 600 N. In which of the following cases the rope will break:
 - (a) Monkey climbs up with an acceleration of 6 m/s
 - (b) Monkey climbs down with an acceleration of 4 m/s2
 - (c) Monkey climbs up with a uniform spoed of 5 m/s.
- 14. Show that angle of repose is equal to coefficent of friction also define angle of repose.
- 15. Show that $\tan \theta = v^2/rg$, for banking of road.
- 16. What is trajectory? For projectile notion, find to, range, max. height & equation of trajectory?
- 17. For resolution of two vectors a & b, find : resultant (R) & direction θ of vector with resultant.