Roll Number		

A

INDIAN SCHOOL MUSCAT
FIRST PERIODIC ASSESSMENT

PHYSICS

CLASS: XI | Sub. Code: 042 | Time Allotted: 50 mts.

14.11.2019 | Max. Marks: 20

GENERAL INSTRUCTIONS:

- All questions are compulsory.
- There are 11 questions in all.
- Question no 1 to 5 carry one mark each.
- Question no 6 to 8 carry two marks each.
- Question no 9 to 11 carry three marks each.

1. How will the momentum of a body change if its kinetic energy is doubled? 1M
2. What should be the angle between the directions of force and displacement for maximum and minimum work? 1M
3. Name the physical quantity which is expressed as force times velocity. Is it a vector or scalar? 1M
4. Why is work done by centripetal force zero? 1M
5. When is the exchange of energy maximum during an elastic collision? 1M
6. Show that work done is equal to the dot product of force and displacement vectors. 2M
7. Derive an expression for the potential energy of an elastic stretched spring. 2M
8. Two bodies of masses m and 4m have equal kinetic energy what is the ratio of their momentum. 2M
9. Show that in case of one dimensional elastic collision of two bodies, the relative velocity of separation after collision is equal to the relative velocity of approach before the collision. 3M
10. State law of conservation of mechanical energy. Show that the total mechanical energy of a body falling freely under gravity is conserved. 3M
11. In a ballistics demonstration a police officer fires a bullet of mass 50 g with speed 200 m/s on soft plywood of thickness 2 cm. The bullet emerges with only 10 % of its KE. What is the emergent speed of the bullet? 3M

End of the Question Paper

Roll Number		

B

INDIAN SCHOOL MUSCAT
FIRST PERIODIC ASSESSMENT

PHYSICS

CLASS: XI | Sub. Code: 042 | Time Allotted: 50 mts.

14.11.2019 | Max. Marks: 20

GENERAL INSTRUCTIONS:

- All questions are compulsory.
- There are 11 questions in all.
- Question no 1 to 5 carry one mark each.
- Question no 6 to 8 carry two marks each.
- Question no 9 to 11 carry three marks each.

1. What is spring constant of a spring? Give its S.I. unit. 1M
2. Which of the two: Kilowatt hour or electron volt is a bigger unit of energy and by what factor? 1M
3. A body is moving at constant speed over a frictionless horizontal surface. What is the work done by Gravitational force? 1M
4. A light body and a heavy body have same kinetic energy. Which one has greater linear momentum? 1M
5. Name the process in which 1M
   (i)Momentum is conserved but KE is not conserved?
   (ii)Momentum changes but KE does not change?
6. Two bodies of masses m_1 and m_2 have the same linear momentum. What is the ratio of their kinetic energies? 2M
7. Derive an expression for the kinetic energy of a body moving with a uniform velocity. 2M
8. The momentum of a body is increased by 100 % .What is the percentage increase in its KE? 2M
9. Prove that bodies of identical masses exchange their velocities after one dimensional elastic collision. 3M
10. State and prove work-energy theorem. 3M
11. A mass of 2 kg attached to a spring is vibrated horizontally by displacing the mass 40 cm from its equilibrium position and releasing it. Find the maximum velocity of the mass. Spring constant is 24.5 N/m 3M

End of the Question Paper

Roll Number		

C

INDIAN SCHOOL MUSCAT
FIRST PERIODIC ASSESSMENT

PHYSICS

CLASS: XI | Sub.Code:042 | Time Allotted: 50mts.

14.11.2019 | Max .Marks: 20

GENERAL INSTRUCTIONS:

- All questions are compulsory.
- There are 11 questions in all.
- Question no 1 to 5 carry one mark each.
- Question no 6 to 8 carry two marks each.
- Question no 9 to 11 carry three marks each.

1. What should be the angle between the directions of force and displacement for maximum and minimum work? 1M
2. Why is work done by centripetal force zero? 1M
3. Name the process in which 1M
   (i)Momentum is conserved but KE is not conserved?
   (ii)Momentum changes but KE does not change?
4. Name the physical quantity which is expressed as force times velocity. Is it a vector or scalar? 1M
5. How will the momentum of a body change it its kinetic energy is doubled? 1M
6. Derive an expression for the potential energy of an elastic stretched spring. 2M
7. Two bodies of masses m and 4m have equal kinetic energy what is the ratio of their momentum. 2M
8. Show that work done is equal to the dot product of force and displacement vectors. 2M
9. State law of conservation of mechanical energy. Show that the total mechanical energy of a body falling freely under gravity is conserved. 3M
10. In a ballistics demonstration a police officer fires a bullet of mass 50 g with speed 200 m/s on soft plywood of thickness 2 cm. The bullet emerges with only 10 % of its KE. What is the emergent speed of the bullet? 3M
11. Show that in case of one dimensional elastic collision of two bodies, the relative velocity of separation after collision is equal to the relative velocity of approach before the collision. 3M

End of the Question Paper