

SHARJAH INDIAN SCHOOL, SHARJAH.

Model Examination – February 2013

Class: XI (Boys Wing)

Max.Marks: 70

Subject: **PHYSICS**

Max.time: 3Hrs

Day & Date: Sunday, 10.02.2013

General Instructions:-

1. All questions are compulsory.

2. Question numbers 1 to 8 are very short answer questions, carrying 1 mark each. Questions 9 to 16 are short answer questions each carrying 2 marks. Questions 17 to 25 are also short answer questions each carrying 3 marks. Questions 26 is a value based question carrying 4 marks. Questions 27 to 29 are long answer questions each carrying 5 marks

3. There is no overall choice. However, an internal choice has been provided in one question of two marks, one question of three marks and all three questions of five marks each. You have to attempt only one of the given choices in such questions.

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1. Can two astronauts talk on the surface of moon as they do on earth? Give reason for your answer.
 2. If the total energy with an oscillating system is E, what is the kinetic energy at $x=A/3$?
 3. If the length and time period of an oscillating pendulum have errors 1% and 2% respectively, what is the error in the estimate of "g"?
 4. Nitrogen and Hydrogen are in thermal equilibrium. What is the ratio of kinetic energies of nitrogen molecule and hydrogen molecule when nitrogen is 14 times heavier than hydrogen?
 5. Under what conditions do real gases behave like ideal gas?
 6. Why do we prefer to use a wrench with a long arm?
 7. A body is initially at rest. It undergoes one dimensional motion with constant acceleration. The power delivered to it in time t is proportional to (i) $t^{1/2}$ (ii) t (iii) $t^{3/2}$ (iv) t^2
 8. The Young's modulus of a wire of length L and radius r is Y. If the length is reduced to L/2 and radius r/2 what will be its Young's modulus?
 9. If $A=12.0 \pm 0.1$ cm and $B=(8.5 \pm 0.5)$ cm, find: (i) A+B (ii) A-B
 10. A motorboat covers the distance between two ports on the river in $t_1=8$ hours and $t_2=12$ hours downstream and upstream respectively. What is the time required for the boat to cover this distance in still water?
 11. State law of conservation of momentum. Use this law to explain the explosion of a mass at rest.
 12. A body of mass 10 kg is placed on an inclined surface of angle 30° . If the coefficient of limiting friction is $1/\sqrt{3}$, find the force required to just push the body up the inclined surface.
 13. A force $3i+2j$ displaces a 1 kg mass from $i+j$ to $-i+2j$. Find the work done.

OR

A force of $F=(3x^2-2x+7)$ N displaces a particle along the x-axis from $x=0$ to $x=5$ m. Calculate the work done.

