Islamic University Faculty of Engineering Department of Mechanical Engineering		الجامعة الإسلامية كليه الهندسة قسم الهندسة الميكانيكية

ME 222- DYNAMICS

QUIZ 1

Fall Semester 2015-2016

Marks
10

Name, Family Name : _____

ID # : _____ **Section # :** _____ **Signature :** _____

Date: 28/09/2016 **Max. Marks: 1 x 10 = 10**

Notes: $S = S_0 + V_0 t + \frac{a_c t^2}{2}$

Answer the following question.

The chipping machine is designed to eject wood chips at Vo = 25 ft/s as shown in Fig. Q.1. If the tube is oriented at 30° from the horizontal, determine how high, h, the chips strike the pile if at this instant they land on the pile 20 ft from the tube.

Ans:-

10

$x = x_0 + V_{0x} t + \underline{\text{zero}}$ (no horrizental acceleration)

$20 = 0 + 21.65 t$

$t = \frac{20}{21.65} = 0.923 \text{ s}$

$h(y) = y_0 + V_{0y} t - \frac{g t^2}{2}$

$h = 4 + 12.5 t - \frac{32.1 (0.923)^2}{2}$

$h = 4 + 11.537 - 13.673$

$\Rightarrow h = 1.864 \text{ ft}$

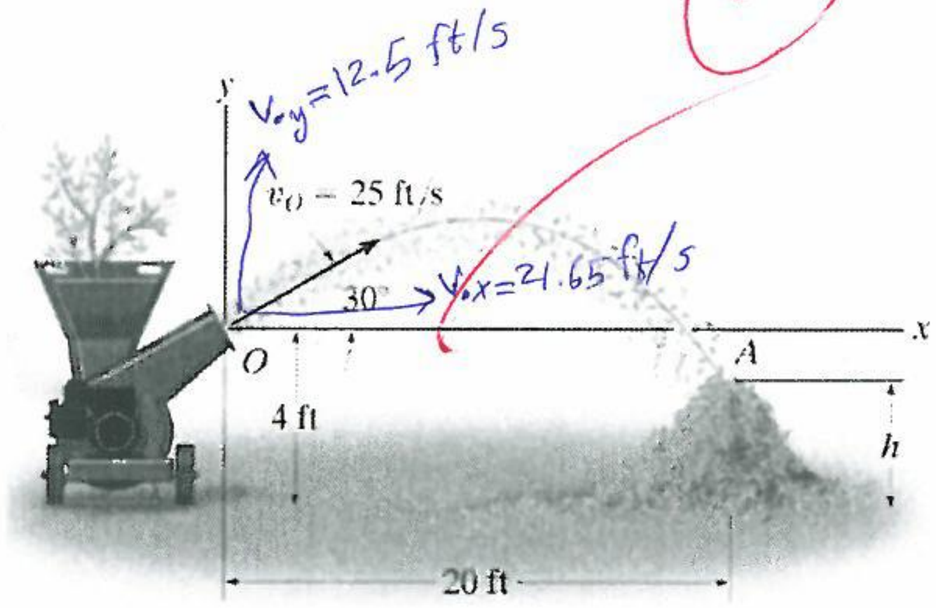

Fig. Q.1

**** For Instructor use only***

S O - E	An ability to identify, formulate, and solve engineering problems
C O - 2	Solve kinematics problems involving rectilinear, curvilinear and relative motion of particles.
P I	Apply basic concepts of Kinematics and kinetics to solve elementary problems