بسم الله الرحمن الرحيم

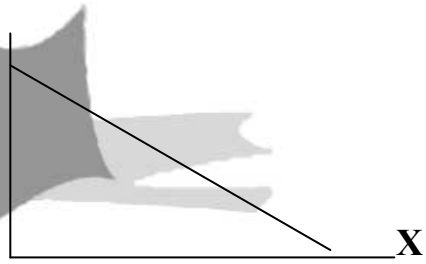
General Lab Physics-I

Consider g = 981 cm/s^2

❋Check by true (√) or false (X) in the questions from 1 to 6 only:

1- Collection and Data Analysis:

Refer to figure beside



- **The relation between y and x is linear [ ]**
- **The relation between y and x3 is linear [ ]**

2- Vector

- **The major error in this experiment is that due to frictional forces [ ]**
- **Using force table, one can directly measure the resultant [ ]**
- **The method of components to find a resultant is not as accurate as the force table [ ]**

3- Kinematics of Rectilinear Motion:

Note: Time interval between two successive points equal 0.1 s

- **In the first two intervals, the speed is almost equa1 [ ]**
- **The acceleration at 0.2 s is negative [ ]**
- **The largest acceleration occurs at 0.4 s [ ]**
- **The speed is slowest at 0.25 s. [ ]**

4- The Falling Sphere Viscometer:

- **The time needed for the ball to reach the bottom of the container increases when using a larger ball diameter. [ ]**
- **The viscosity coefficient increases by increasing the ball diameter [ ]**
- **The terminal velocity increases increasing the ball diameter [ ]**

5- Collision in Two Dimensions:

The value of the initial momentum of the projectile ball:

❀ Can be obtained by adding the final momentum of the balls vectorially. [ ]

❀ Can be obtained by performing the experiment with only the projectile ball[ ]

6- Force & Motion

A- in this experiment, two taps were obtained. The time interval between two successive points equals = 0.1 sec.

► If the total hanging mass is the same for both tapes, then the added mass to the cart for

- **Tape B is larger than that for Tape A ( )**
- **The acceleration is constant in Tape A and is negative ( )**
- **If the cart is empty in both cases, then the total hanging weight for Tape B is larger than that for Tape A ( )**

✵ Fill or Round the right answer in the following three questions:

7-Measurement & Uncertainties:

A- Five measurements of the volume of a disk (diameter, d and thickness, t) were made. Let the fractional errors in d and t be A (i.e. A= Δd/d) and B (i.e. B = Δt/ t) respectively. Then the fractional error in the volume is:

a- $(4A+B)^{1/2}$ b- $4A^2+B^2$

c- $(4A^2+B^2)^{1/2}$ d- (A^2+B^2)

B –

❀ The error in the Micrometer reading for a single measurement is:-----

❀ The error in the Vernier caliper is:--------

8- Gas Laws:

B) A change of atmospheric pressure during the experiment:

a) Would affect the results of the experiment.

b) Would have no effect on the results of experiment.

9- Specific Heat:

A) A 100 gm copper block with specific heat 0.1 cal/gram °C at a temperature (T= 95°C) calorimeter is immersed a colorimeter 100 grams of water initially at 20 °*C*. If the final temperature is 25 °C.T heat capacity of the calorimeter is -----

B) To minimize the heat loss to the surroundings, one should:

a) Insulate the calorimeter.

b) Increase the initial temperature of *the* co over block.

c) Decrease the mass of the water in the calorimeter

d) Increase the mass of the water in the calorimeter.

10- Collisions

A) The following data was obtained for a collision experiment using two balls of equal mass. P_{1f} = 40 cm.

P_{2f} is at an angle of 60^o with P_{1f}

The momentum P_{2f} is: ----------

The momentum P_{1f} is: ----------

B) As the offset (الإزاحة) between the path of the colliding (الصادمة) ball and the center of the stationary (ثابتة) ball is increased.

a) The angles change but their sum remains constant.

b) The angles of the final momentum with the initial direction decrease.

c) The angles remain constant.

d) The angles of the final momentum with the initial direction increase.

11- Simple Pendulum:

In this experiment , increasing the number of oscillations of the which the time interval is measured.

a) Causes the measured value of g to increase.

b) Causes the measured value of g to decrease.

c) Has no effect on the measured value of g.

12- Specific Heat Capacity of Metals:

- **The unit of Specific heat capacity is**
- **The major error contributing to this experiment is**

13- Rotational Motion:

Answer by (Increasing, decreasing OR constant) under the following conditions:

Condition	(torque)	I (moment of inertia)
M decreasing B_h constant		
M= constant m_h= increasing		

(Where M is the mass of the turntable, m_1 is the mass of the holder.)