Ch 5: Momentum name:

Study Guide H: format: 27 Q; 21 mc/t or F; 6 calculations; 1 extra credit riddle; CP: 21 mc/t or f (\*SKIP)

**Vocab**

*momentum impulse Newton's 3rd law in momentum*

*elastic collision inelastic collision law of conservation of momentum*

**Formulae**; (units)

momentum: ****= mv**; (kg \* m/s) impulse: **I = Ft**

**impulse =** * in* **momentum (Ft =** *in* *******)* conservation of ******: ****** after = ****** before

m1v1 + m2v2 = m3v3

**Things you MUST know:**

1. Two ways you can change momentum:
   1. Change m
   2. Change v
      1. Direction
      2. Accelerate
2. Be able to discern between scenarios which has the largest ******.
3. \*Be able to calculate what happens to a given ******if parameters change (m or v).\*sim. to Rev. Q's #19, 20
4. It is not technically correct to say that 'impulse is equal to momentum.' What should it be & why? Impulse is equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Why?
5. The *conservation* of momentum is most closely related to Newton's third law.
6. For a given momentum, how does one lessen the impact F?
7. What would happen if it were possible to make a cannon less massive than its cannon ball and fire it? Why?
8. This will come up again & again (& again) in our future: Coach Bowman & Dr. Wackes walk into a physical science classroom and permit Mr. e to stand between them & push each of them with equal F. Which one moves faster? Which one has more momentum? (ooh a tricky Q)
9. A car is traveling along a highway and needs a certain F exerted on it to stop. Each of these situations will demand more F: If the car has…
   1. More m
   2. More v
   3. More ******
   4. Less d to stop (stopping d)
10. A person hits a block of wood with their fist. Select those which are true?
    1. Impulse is same on hand & wood
    2. F on wood & hand
    3. t of impact on wood & hand
11. For a given impulse, be able to relate F to t if quantities are given.
12. Two vehicles, one large (truck) and one small (VW) collide:
    1. The impact F is the same for both.
    2. The impact time is the same for both.
    3. The change in ******is the same for both.
    4. The one that experiences the greatest change in v (acceleration/deceleration) is the smaller one. Why?
13. Suppose you are riding your bike down the town's largest hill and so you gain a considerable amount of speed. Just then a love bug (two?) decides to cross your path and hits your forehead. On which is the:
    1. F greater
    2. t of impact greater
    3. change in ****** greater
14. \*Be able to calculate average F, ******, & v using the formulae atop the page; see the Problems in the text.

