PHY.05 PracTest - Momentum

1. Which of the following is/are possible
   I. an apple can have less momentum than a railroad car
   II. an apple can have momentum equal to a railroad car
   III. an apple can have more momentum than a railroad car
   A. I only C. III only E. I and III only G. I, II and III
   B. II only D. I and II only F. II and III only H. None

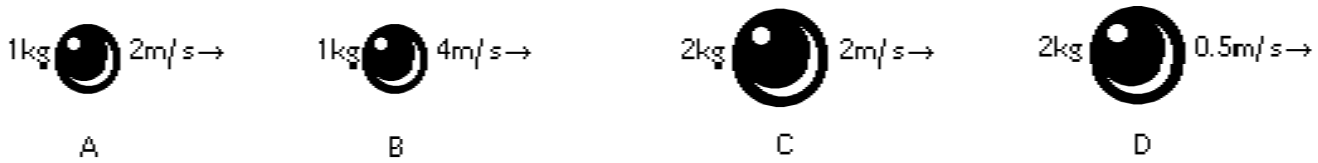
2. A certain particle undergoes erratic motion. At every point in its motion, the particle's momentum ALWAYS has the same direction as the particle's
   A. velocity C. force E. position
   B. acceleration D. kinetic energy F. none of these

3. Which of the following is/are appropriate unit(s) for momentum?
   A. kg·m/s B. N/s C. Both D. Neither

4. What is the mass of an object moving at 6 m/s whose momentum is 48 kg·m/s
   A. 0.125 kg B. 2 kg C. 4 kg D. 8 kg

5. What is the speed of a 4 kg object whose momentum is 8 kg·m/s?
   A. 0.5 m/s C. 2 m/s E. 8 m/s
   B. 1 m/s D. 4 m/s F. 32 m/s

6. Consider two objects, A and B. Object A has a mass of 9 kg and moves at 17 m/s. Object B has a mass of 10 kg and moves at 15 m/s. Which particle has more momentum?
   A. Object A B. Object B C. Same for both



7. Which object above has more inertia, A or D?
   A. A B. D C. same for both

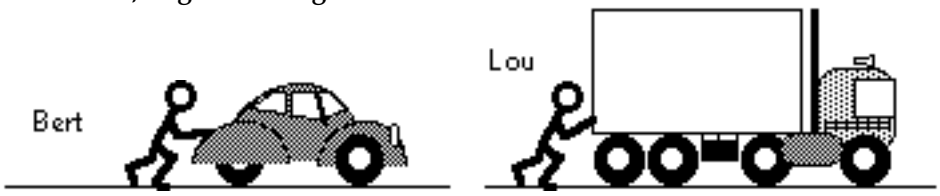
8. Which object above (A, B, C, or D) above would be the easiest to stop?
   A. A B. B C. C D. D

9. The rate of change in momentum of an object is equal to the
   A. net force exerted on the object C. impulse imparted to the object
   B. change in velocity of the object D. object's mass times the force exerted

10. If a thrown egg hits a wall (and breaks), it will experience a certain impulse and a certain force upon impact. If a thrown egg is caught by a student (and survives), the egg will experience _?_ impulse and _?_ force upon impact.

A. more ; the same
B. more ; less
C. the same ; more
D. the same ; the same
E. the same ; less
F. less; more
G. less; the same
H. less ; less

Bert and Lou, two musclemen of equal strength, exert equal forces on different vehicles. Bert pushes a lightweight European model, and Lou pushes a Mack truck. They both push their vehicles for 10 s. Both vehicles accelerate; neglect rolling friction.



11. Bert's vehicle now has more momentum than Lou's

A. True
B. False

12. Two identical boxcars are accelerated from rest. Boxcar A is acted on by a force of 1000 N for 10 s. How long must a 500 N force act on boxcar B for it to undergo the same change in momentum?

A. 1 s
B. 5 s
C. 10 s
D. 20 s
E. 50 s
F. 100 s

13. A 3 kg mass moving at 6 m/s slides across a floor and comes to rest in 4 s. The friction force acting on the mass was

A. 0.5 N
B. 1.0 N
C. 2.0 N
D. 4.5 N
E. 8.0 N
F. 12 N

Consider the following objects:
A: m = 6 kg, v = 6 m/s **B: m = 9 kg, v = 4 m/s** **C: m = 4 kg, v = 9 m/s**

14. Which object has the greatest momentum?

A. A
B. B
C. C
D. Tie: A and B
E. Tie: B and C
F. Tie: same for all

15. Which object has the greatest kinetic energy?

A. A
B. B
C. C
D. Tie: A and B
E. Tie: B and C
F. Tie: same for all

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Answer Section

MULTIPLE CHOICE

1.	ANS: G	TOP: Momentum Concept	NOT: PT
2.	ANS: A	TOP: Momentum Concept	NOT: PT FINAL
3.	ANS: A	TOP: Momentum Concept	NOT: PT
4.	ANS: D	TOP: Momentum Calculations	NOT: UT PT
5.	ANS: C	TOP: Momentum Calculations	NOT: PT
6.	ANS: A	TOP: Momentum Calculations	NOT: PT
7.	ANS: B	TOP: Inertia Momentum Balls	NOT: PT
8.	ANS: D	TOP: Inertia Momentum Balls	NOT: PT
9.	ANS: A	TOP: Impulse Concept	NOT: PT
10.	ANS: E	TOP: Impulse Concept	NOT: PT
11.	ANS: B	TOP: Bert Lou Impulse	NOT: PF
12.	ANS: D	TOP: Impulse Calculation	NOT: PT
13.	ANS: D	TOP: Impulse Calculation	NOT: PT
14.	ANS: F	TOP: KE and Momentum	NOT: PT
15.	ANS: C	TOP: KE and Momentum	NOT: PT