JULY 2019
EBS 142
GENERAL PHYSICS THEORY I
30 MINUTES

Candidate's Index Number
Signature:

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B. ED)
FIRST YEAR, SECOND SEMESTER QUIZ II, JULY 2019

JULY 3, 2019

GENERAL PHYSICS THEORY I

3:30 PM – 4:00 PM

Answer all the questions
(20 MARKS)

For items 1 to 18, each stem is followed by four options lettered A to D. Read each item carefully and circle the letter that corresponds to the correct or best option.

1. Which of the following is an example of a contact force?
   A. Electrostatic force.
   B. Frictional force.
   C. Gravitational force.
   D. Magnetic force.

2. The turning effect of a force is called... .....
   A. couple.
   B. moment.
   C. momentum.
   D. torque.

3. Which of the following is the cause of an acceleration or a change in an object's motion?
   A. Force.
   B. Inertia.
   C. Speed.
   D. Velocity.

4. A body which moves with constant velocity is said to be in ..... equilibrium
   A. dynamic
   B. neutral
   C. stable
   D. static

5. Kofi weighs 300 N, he sits 2m from the pivot of a seesaw. If Ama weighs 700 N, where should she sit to balance the seesaw?
   A. 0.66 m
   B. 0.76 m
   C. 0.86 m
   D. 0.96 m

6. In the absence of an external force, a moving object will .....
   A. move faster and faster.
   B. move with constant velocity for a while and then slow to a stop.
   C. move with constant velocity.
   D. slow down and eventually come to a stop.

7. A 2 kg box sits on a 3kg box which sits on a 5 kg box. The 5 kg box rests on a table top. What is the normal force exerted on the 5 kg box by the table top? [Take $g = 9.8\ m/s^2$]
   A. 19.6 N.
   B. 29.4 N.
   C. 49 N.
   D. 98 N.

8. A wooden box rests on an inclined surface. If the inclination of the surface is made steeper, what does the normal force on the box do? The normal force.....
   A. decreases.
   B. increases.
   C. is zero N.
   D. stays the same.

9. If a nonzero net force is acting on an object, then the object is definitely .....
   A. at rest.
   B. being accelerated.
   C. losing mass.
   D. moving with a constant velocity.

10. What is 1.5 revolutions in radians?
   A. 2.0 πrad.
   B. 2.5 πrad.
   C. 3.0 πrad.
   D. 3.5 πrad.

11. A body of mass 300 g is moved through a distance of 50 m in 5 s in the direction of the force. What is the momentum of the body?
   A. 0.03 kgm/s.
   B. 0.3 kgm/s.
   C. 3 kgm/s.
   D. 30 kgm/s.

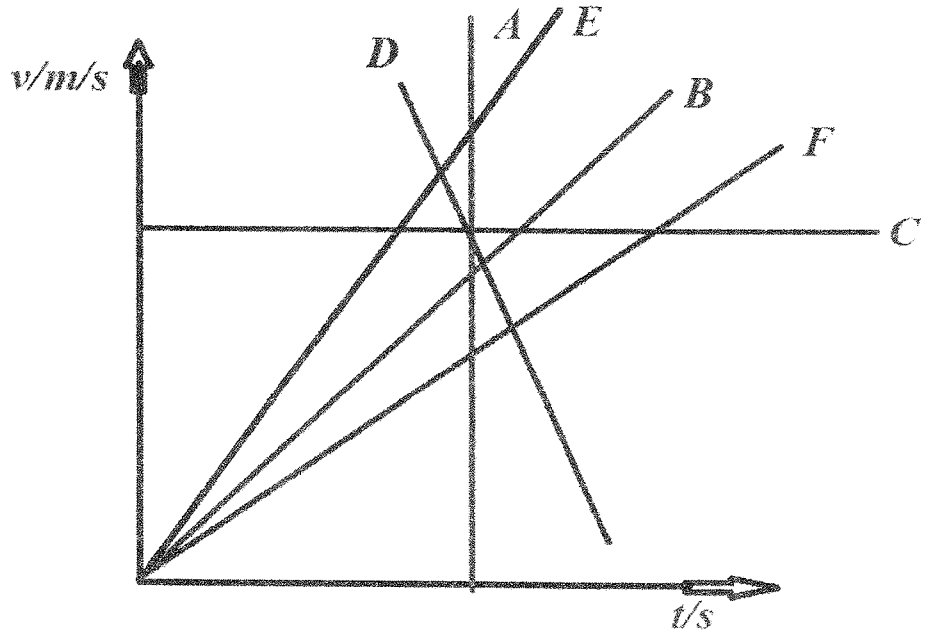
12. Which of the Laws of Newton is his statement that for every action there is an equal but opposite reaction?
    A. First.
    B. Second.
    C. Third.
    D. Fourth.

13. A car with a weight of 300.0 N is accelerated across a level surface at 0.5 m/s^2. What net force acts on the car? [Take $g = 9.81\ m/s^2$]
    A. 9 N
    B. 15 N
    C. 150 N
    D. 610 N

14. The number of revolutions per unit time of a body undergoing circular motion is called .....
    A. angular acceleration.
    B. angular velocity.
    C. frequency.
    D. period.

15. Two perpendicular forces, one of 45.0 N directed upward and the second of 60.0 N directed to the right, act simultaneously on an object with a mass of 35.0 kg. What is the magnitude of the resultant acceleration of the object?
    A. 1.41 m/s^2
    B. 2.14 m/s^2
    C. 3.00 m/s^2
    D. 5.25 m/s^2

The graph below shows the motion of a particle on a velocity-time graph. Use the graph to answer questions 17 and 18.



16. Which of the graphs represent the uniform acceleration of the particle?
    A. F, E and A.
    B. A, B, and D.
    C. D, A and F.
    D. F, B, and E.

17. What is the interpretation of C?
    A. Body is at rest.
    B. Body moving with uniform acceleration.
    C. Body moving with uniform speed.
    D. Body moving with uniform velocity.

Item 18 is statement followed by True and False options. Read the statement carefully and indicate whether it is True or False, by circling the letter of the correct option.

18. Angular acceleration does **not** change with radius, but tangential acceleration does.
    A. True
    B. False

For item 19, write the appropriate response in the spaces provided.

19. A ball is kicked at an angle of 30° to the horizontal. Determine the vertical and the horizontal components of the velocity if the ball moved with a velocity of 20m/s.

Vertical component:

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Horizontal component:

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