

(FACULTY OF SCIENCE)

DEPARTMENT OF PHYSICS 2014/2015 SESSION

PHY 1210 (Mechanics) - 1st C.A TEST

Group: Physics

Time: 30 Minutes

Instruction: Answer all questions

REG. NUMBER:	FULL NAME:
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- All the following are examples of vector quantities except (a) force (b) velocity (c) displacement (d) torque (e) none
 of the above
- 2. The value of 30km/min is the same as (a) 500m/s (b) 200m/hr (c) 500km/s (d) 0.7m/s (e) none of the above
- Which among the physical quantities below has a dimension of 1? (a) stress (b) refractive index (c) density (d) work (e) energy.

Given two vectors $\vec{A} = 2\hat{\imath} + \hat{\jmath}$ and $\vec{B} = \hat{\imath} - \hat{k}$. Use this information to answer Q4 to Q6

- 4. The value of $\vec{A} \cdot \vec{B}$ is (a) -6 (b) 1 (b) 5 (d) 2 (e) none of the above
- 5. Evaluate $|\vec{A} + \vec{B}|$ (a) 2.5 units (b) 9.1 units (c) 3.31 units (d) 7.4 units (e) none of the above.
- 6. Simplify $3\vec{A} \vec{B}$ (a) $5\hat{\imath} + 3\hat{\jmath} \hat{k}$ (b) $2\hat{\imath} \hat{\jmath} 4\hat{k}$ (c) $3\hat{\imath} + 5\hat{\jmath} 4\hat{k}$ (d) $5\hat{\imath} + 3\hat{\jmath} + \hat{k}$ (e) none of the above.

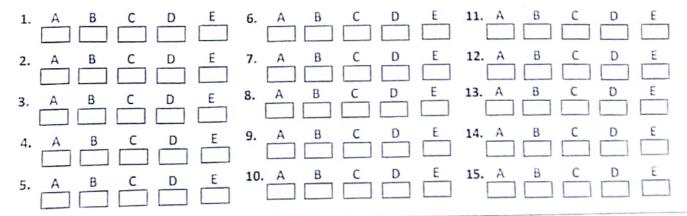
The distance (in metre) moved by a body at any time (in seconds) is given as $x = t^3 - 1$. Use this information to answer to questions Q7 to Q9

- 7. The distance covered by the body after 2 seconds is (a) 8m (b) 9m (c) 7m (d) 6m (e) none of the above
- 8. The displacement of the car from 1s to 3s is (a) 28m (b) 27m (c) 6m (d) 9m (e) none of the above
- 9. The velocity of the car at t = 3 seconds is (a) 27m/s (b) 13m/s (c) 28m/s (d) 34m/s (e) none of the above
- A train covered a distance of 15km in 6 minutes. The average speed of the car in m/s is (a) 6m/s (b) 9.04km/h (c) 1.5m/s (d) 20m/s (e) none of the above
- 11. A pen drop from a tall building of height 35m. What is the time taken for the pen to strike the ground? Take g = 10m/s². (a) 2.64s (b) 0.5s (c) 43s (d) 7s (e) none of the above
- A car starts slowly with an initial speed of 3m/s and accelerates uniformly with an acceleration of 25m/s² for 2 seconds. The total distance covered by the bicycle after 2 seconds is (a) 21m (b) 14m (c) 23m (d) 56m (e) none of the above.

A missile is launch into air at an angle of 45° to the horizontal with an initial speed of 20m/s. Take $g = 10\text{m/s}^2$. Use this information to answer to questions Q13 to Q15

- 13. The total time spent by the missile in air before it strikes the ground is (a) 4.23s (b) 1.7s (c) 1.2s (d) 2.8s (e) none of the above
- 14. The horizontal range covered by the projectile is (a) 40m (b) 60m (c) 80m (d) 100m (e) none of the above
- 15. The maximum height reached by the missile is (a) 7.6m (b) 9m (c) 16m (d) 25m (e) none of the above

ANSWER SHEET



2014/2014 First Semester - 1st C.A Test |

PHY 1210



(FACULTY OF SCIENCE)

DEPARTMENT OF PHYSICS



GROUP D

(2016/2017 SESSION)

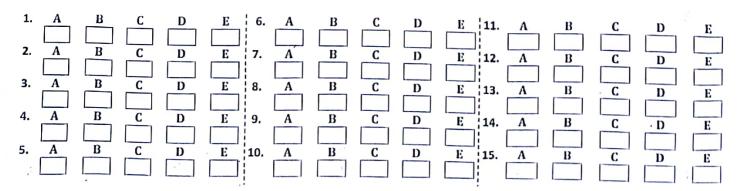
PHY 1210 (Mechanics) - 1st C.A TEST-for Applied Biology Students

TIME: 30 Minutes

UNI. NUMBER: FULL NAME:

- 1. The dimension of momentum is (a) LT^{-3} (b) $LM(c)MLT^{-1}$ (d) $ML^{-3}T^{-2}$ (e) none of the above
- 2. Which of the following is a fundamental quantity? (a) force (e) area (c) volume (d) density (e) none of the above
- 3. Which of the following is an SI unit?(a) m (b) A (c) s (d) N (e)all of the above Given two vectors $\vec{A} = i j k$ and $\vec{B} = -i + j + 2k$. Use this information to answer **Q4** and **Q5**.
- **4.** Evaluate $\vec{B} \vec{A}$ (a) 2i j + 3k (b) -2i + 2j + 3k(c) 5i + k(d) 2i 2j 3k (e) none of the above
- 5. What is the value of $|\vec{B} \vec{A}|$? (a) $\sqrt{26}$ (b) $\sqrt{15}$ (c) $\sqrt{14}$ (d) $\sqrt{13}$ (e) none of the above
- 6. If a feather, stone and an iron bar are released from a same height in a room without any air resistance. Which one will fall first? (a) iron bar (b) feather (c) stone (d) all at the same time (e) none of the above
- 7. When an object is moving with uniform velocity, what is its acceleration? (a)infinity (b) uniform (c) non-uniform (d) negative (e) zero
- 8. Speed of 120 km/h when expressed in m/s is (a) 10(b) 33 (c) 17 (d) 68(e) 25
- 9. Total distance covered in total time taken is termed as (a) instantaneous speed (b)non-uniform speed (c) uniform speed (d) variable speed (e)average speed
- 10. A car stops and then starts accelerating uniformly at rate of 3 ms⁻². The speed of car after 20 seconds is (a) 40 ms⁻²(b) 60 ms⁻² (c) 100 ms⁻² (d) 30 ms⁻²(e) 90ms⁻²
- 11. Range of projectile will be minimum when angle of projectile is(a) 0° (b) 30° (c) 60° (d) 90° (e) 90°
- 12. A stone is projected horizontally with a velocity 9.8m/s from a tower of height 100m. Its speed 1s after projection is (a) 9.8m/s (b) 4.9m/s (c)3.9m/s (d) 6.9m/s (e) 13.9m/s
- 13. A body projected with velocity 30m/s reaches its maximum height in 1.5s. Its range is (g=10m/s²) (a) 45m (b)78m (c) 45m(d) 108m (e) none of the above
- 14. A ball is projected vertically downwards from a height of 30m. With what velocity does it strike the ground? Take $g = 9.8 \text{m/s}^2$. (a) 6 m/s(b) 17 m/s (c) 9.8 m/s (d) 32 m/s(e) 24 m/s
- 15. A boy throws a ball at an initial velocity of 26 m/s at an angle of 20° above the horizontal. How highabove the projection point is the ball after 1.4 s? Take g = 9.8m/s^2 . (a) 8.2 m (b) 24 m (c) 23 m (d) 2.8 m (e) 1.04m

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(FACULTY OF SCIENCE)

DEPARTMENT OF PHYSICS



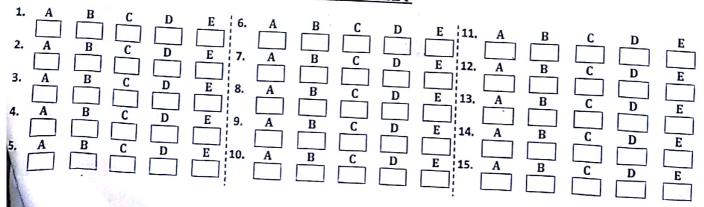
(2016/2017 SESSION)

HY 1210 (Mechanics) - 1st C.A TEST- for Applied Biology Students TIME: 30 Minutes

UNI. NUMBER:FULL NAME:....

- The dimension of density is (a) LT^{-3} (b) $LM(c)L^{-2}T^{-3}$ (d) $ML^{-3}T^{-2}$ (e) none of the above
- Which of the following is a derived physical quantity? (a) time (e) area (c) mass(d) distance (e) temperature 2.
- Which of the following is not anSI unit? (a) cm (b) A (c) kg (d) N (e) ^{o}K Given two vectors $\vec{A} = i - j - k$ and $\vec{B} = -i + j + 2k$. Use this information to answer **Q4** and **Q5**.
- Evaluate $\vec{A} \vec{B}$ (a) 2i + 3k(b)-2i + 3j k(c)5i + k(d)2i 2j 3k(e) none of the above
- What is the value of $|\vec{A} \vec{B}|$? (a) 2 (b) $\sqrt{6}$ (c) $\sqrt{2}$ (d) $\sqrt{13}$ (e)none of the above
- You start from rest and accelerate with a given constant acceleration for a given distance. If you repeat the process with twice the acceleration, then the time required to travel thesame distance(a) remains the same(b) is doubled(c) is halved(d) increases by a factor of $\sqrt{2}$ (e) decreases by a factor of $\sqrt{2}$ 7.
- When an object is moving with uniform velocity, what is its acceleration? (a) zero (b) uniform (c) nonuniform (d) negative (e) none of the above 8.
- Speed of 90 km/h when expressed in m/s is (a) 10 (b) 68 (c) 17 (d) 52(e) 25
- Total distance covered in total time taken is termed as (a) instantaneous speed (b) average speed (c) uniform speed (d) variable speed (e) non-uniform speed
- 10. A car stops and then starts accelerating uniformly at rate of 3 ms⁻². The speed of car after 20 seconds is (a) 40 ms⁻² (b) 30 ms⁻² (c) 100 ms⁻² (d) 30 ms⁻²(e) 60ms^{-2}
- Range of projectile will be maximum when angle of projectile is(a) 0° (b) 30°(c) 45° (d) 15° (e) 90°
- 12. A stone is projected horizontally with a velocity 9.8m/s from a tower of height 100m. Its speed 1s after projection is (a) 9.8m/s (b) 4.9m/s (c) 13.9m/s (d) 6.9m/s (e) none of the above
- 13. A body projected with velocity 30m/s reaches its maximum height in 1.5s. Its range is (g=10m/s²) (a) 45m (b) 108m (c) 45m(d) 78m (e) none of the above
- 14. A body is projected vertically downwards with the velocity 5m/s from a height of 60m. Its time of descent is (a) 2s (b) 3s (c) 4s (d) 5s (e) none of the above
- 15. A ball is projected with velocity 10 m/s at angle of 30° with the horizontal surface. Use g=10m/s², the speed of the ball in the y-direction after 1 second will be (a) 5 m/s (b) 7m/s (c) 8 m/s (d)9m/s (e)none of the above

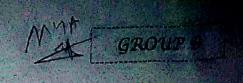
ANSWER SHEET



(FACULTY OF SCIENCE)

DEPARTMENT OF PHYSICS

(2016/2017 SESSION)



(Mechanics) - 1st C.A TEST- for Applied Biology Students

TIME: 30 Minutes

NUMBER: FULL NAME:

Which of the following physical quantities is not fundamental? (a) mass (b) distance (c) strain (d)electric current(e) luminous intensity

What is the dimension of energy? (a) ML^2T^{-2} (b) $ML^{-1}T^{-2}$ (c) MLT^{-2} (d) $M^{-1}L^{-1}T^{-2}$ (e) $L^{-2}T^{-3}$

- Which of the following is not a derived quantity? (a) speed (b) area (c) distance (d) force (e) volume
- If $\vec{X}=2i-j$ and $\vec{Z}=-i-k$. What is the value of $\vec{X}\cdot\vec{Z}$? (a) 5 (b) -2 (c) 4 (d) -2 (e) 2
- What is the value of $(\hat{\imath} \times \hat{\jmath}) (\hat{\jmath} \times \hat{\imath})$? (a) 2i (b) -2j (c) 2j (d)2k (e) -2k

The distance x in metres (m) covered by a car at any time t in seconds (s) is given by $x = 1 + 3t - 2t^2$. Use this information to answer Q6 to Q8.

- What is the displacement of the dog from t_1 = 2s to t_2 = 5s? (a) -25m (b) 8m (c) 85m (d) -33m (e) 25m
- The initial velocity of the body is? (a) 3m/s (b) 4m/s (c) -4m/s (d) 18/s (e) 7m/s 6.
- At what time is the body at rest? (a) 3s (b) 7s (c) 0.75s (d) 1.33s (e) 0.35s 7. 8.

A train starts from rest and accelerates uniformly to a velocity of 80m/s for 2minutes. Use this information

- What is the acceleration of the train? (a) 40m/s²(b) 0.025m/s²(c) 3.02m/s²(d) 1.51m/s²(e) 0.67m/s²
- The distance covered by train after 8s is (a) 9m(b)19m (c) 37m (d) 19m (e) 21m 9.
- A body is projected vertically upward with an initial speed of 10m/s. What is the final velocity of the body at 10. the maximum height? Take $g = 9.8 \text{m/s}^2$. (a) -10m/s (b) 10m/s (c) -9.8m/s (d) 9.8m/s (e) none of the above 11.
- 12. Amango fruit fell from a top a tree with a speed 10m/s under the influence of gravity. What was the height from which the fruit fell from? Take $g = 10 \text{m/s}^2$. (a) 4m (b) 5m (c) 7m (d) 15m (e) 10m A key is projected upward at an angle of 30° to the horizontal with an initial speed of 15m/s. Take g = 10m/s². Use this information to answer Q13 to Q14.
- What is the horizontal velocity of the key after 8 seconds? (a)13m/s (b) 19m/s (c)7.5m/s(d) 14m/s (e) 9m/s
- The range covered by the key will be (a) 28m (b) 23m (c) 20m (d) 21m (e) 32m 13:
- What is the total time of flight of the key? (a) 51s (b) 1.5s (c) 8s (d) 2.5s (e) 1s 14. 15.

ANSWER SHEET

