**NEHEMIAH UNIVERSITY STUDENTS & GRADUATES UNION**

**Excellence Team**

**PRACTICE ENTRANCE EXAM(PEE)**

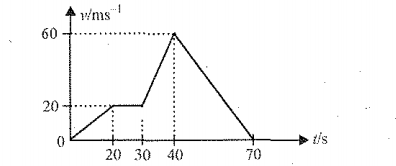
1. A vector is directed at an angle above the axis, pointing into the first quadrant. If the x component of this vector is 10 m, the magnitude of the vector is **A**.greater than 10 m **B**. equal to 10 m **C**. less than 10 m **D**.the same as the y component of the vector
2. A vector perpendicular to i+ j + k is
3. i - j+k **B**.i - j - k **C**.-i - j – k **D**.3i + 2j -5k
4. The angle between A+ B and A x B is

A. 0 B. /4 C. /2 D.

1. Two vectors a and b are such that = . What is the angle between a and b? A. 0° B. 90° C. 60° D.180°
2. Which of the following numbers has least number of significant figures? A. 0.80760 C. 0.08076 B. 0.80200 D. 80.267
3. The numerical value of the ratio of instantaneous velocity to instantaneous speed is

A. always less than one C. always more than one

B. always equal to one D. equal to or less than one

1. An object is dropped from rest and falls a distance D in a given time. If the time during which it falls is doubled, the distance it falls will be A. 4D B. 2D C. D d D/2 E. D/4.
2. A bullet is dropped into a river from a very high bridge. At the same time, another bullet is fired from a gun straight down towards the water. If air resistance is negligible, the acceleration of the bullets just before they strike the water A. is greater for the dropped bullet. B. is greater for the fired bullet. C. is the same for both bullets. D. depends on how high they started.
3. The velocity-time graph of a body is given in Fig.The maximum acceleration in ms2 is 

A.4 B.3 C.2 D.1

1. Two bullets are fired horizontally with different velocities from the same height. Which will reach the ground first? a. slower one b. faster one c. both will reach simultaneously d. it cannot be predicted
2. Two balls are dropped at the same time from different heights. As they accelerate toward the ground, the distance between them will A. remain constant. B. decrease. C. increase. D.unknown
3. An airplane flying at a constant horizontal velocity drops a package of supplies to a scientific mission in the Antarctic. If air resistance is negligibly small, the path of this package, ***as observed by a person in the plane***, is A. a parabola. B. a straight line downward. C. a straight line pointing ahead of the plane. D. a straight line pointing behind the plane
4. An airplane flying at a constant horizontal velocity drops a package of supplies to a scientific mission in the Antarctic. If air resistance is negligibly small, the path of this package, ***as observed by a person in the ground***, is A. a parabola. B. a straight line downward. C. a straight line pointing ahead of the plane. D. a straight line pointing behind the plane
5. A ball is thrown upwards and it returns to ground describing a parabolic path. Which of the following quantities remains constant throughout the motion? a. kinetic energy of the ball b. speed of the ball c. horizontal component of velocity d. vertical component of velocity
6. The displacement *s* of a particle is proportional to the first power oftime *t,* i.e., **s t***;* then the acceleration of the particle is  
   **a.** infinite **b.** zero c. a small finite value d. a large finite value
7. The displacement *s* of a particle is proportional to the second power oftime *t,* i.e., **s t2***;* then the acceleration of the particle is  
   **a.** infinite **b.** zero c. a small finite value d. a large finite value
8. A crate remains stationary after it has been placed on a ramp inclined at an angle with the horizontal. Which of the following statements must be true about the magnitude of the frictional force that acts on the crate? (a) fs > mg. (b) fs > mg cos 30°. (c) fs = mg cos 30°. (d) fs = mg sin 30°. (e) fs = Fns.
9. A stone of mass m is attached to a strong string and whirled in a vertical circle of radius R. At the exact top of the path, the tension in the string is three times the stone’s weight. At this point, the stone’s speed is 
10. A frictional force provides the centripetal force as a car goes around an unbanked curve of radius R at speed V. Later, the car encounters a similar curve, except of radius 2R, and the driver continues around this curve at the same speed V. In order to make this second curve, the frictional force on the car must be equal to

