

國立勤益技術學院九十四學年度四技轉學生招生考試試題

系別	電子工程系	年級別	二	考試節次	第三節
考試科目	專業科目二：物理	准考證號碼		(考生自填)	

1. (Projectile Motion) What is the trajectory of projectile motion on earth? In what angle we have the maximum horizontal distance? Derive the equation of horizontal range R if initial speed is V_0 , angle is θ_0 and the acceleration is g . (20%)

2. (Coulomb's law) Two electric charged particles are placed at (1,1,1) and (3,2,3) with +1C and -1C, respectively. Please find the magnitude of the force between these two charged particles. (20%)

3. Write the equation for a sinusoidal wave traveling in the negative direction along an x -axis and having an amplitude of 0.010 m, a frequency of 500 Hz, and a speed of 300 m/s. (20%)

4. A single force acts on a 4.0 kg particle-like object in such a way that the position of the object as a function of time is given by $x = 3t - 4t^2 + t^3$, with x in meters and t in seconds. Find the work done on the object by the force from $t = 0$ to $t = 4.0$ s. (20%)

5. In Fig. 1, what is the magnitude of \vec{F} when the block m is moving to the left with a constant speed of 5 m/s? ($m = 12$ Kg) (20%)

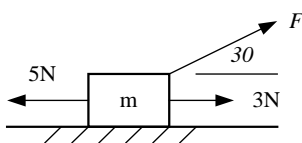


Fig. 1