



Sample Questions for Section on Numerical Value

Q.1: A particle moves in the x-y plane under the influence of a force such that the linear momentum is $\mathbf{P}(t) = A [\hat{i} \cos kt - \hat{j} \sin kt]$

Where A and k are constants. The angle in degrees between force and momentum is_____.

Answer : 90

Q.2: A power line lies along the east - west direction and carries a current of 10 A. The force per meter due to earth's magnetic field of 10^{-4} T is 10^{-x} N/m. The value of x is_____.

Answer : 3

Q.3: The sun's disc subtends an angle of 10^{-2} rad at the earth. The radius of curvature (in meters) of the mirror which will produce on a screen an image of the sun 2 cm in diameter is_____.

Answer : 4



Q.4: The binding energy of deuteron (${}_1\text{H}^2$) is 1.15 MeV per nucleon and an alpha particle (${}_2\text{He}^4$) has a binding energy of 7.1 MeV per nucleon. Then in the reaction ${}_1\text{H}^2 + {}_1\text{H}^2 \rightarrow {}_2\text{He}^4 + Q$

The energy Q released in MeV is _____

Answer : 23.8

Q.5: Light of wavelength 0.6 mm from a sodium lamp falls on a photo cell and causes the emission of photoelectrons for which the stopping potential is 0.5 V. With light of wavelength 0.4 mm from a mercury lamp the stopping potential is 1.5 V. Then, the work function in eV of the photocell surface is_____.

Answer : 1.5