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| **Curriculum Requirements** | **Even Test Paper** | **Odd Test Paper** |
| year 11 gravity and energy (prior knowledge) |  |  |
| when a mass moves or is moved from one point to another in a gravitational field and its potential energy changes, work is done on the mass by the field  *This includes applying the relationships*  Ep = m g Δh , W = F s ,  W = ΔE , Ek = ½ m v2 | Q4 (4)  Q5 (5) |  |
| when an object experiences a net force at a distance from a pivot and at an angle to the lever arm, it will experience a torque or moment about that point  *This includes applying the relationship*  τ = r Fsinθ | Q1 (6) |  |
| for a rigid body to be in equilibrium, the sum of the forces and the sum of the moments must be zero  *This includes applying the relationships*  ƩF = 0 , τ = r Fsinθ , Ʃτ = 0 | Q2 (5)  Q7 (10) |  |
| all objects with mass attract one another with a gravitational force; the magnitude of this force can be calculated using Newton’s Law of Universal Gravitation  *This includes applying the relationship* | Q3 (3)  Q6 (1)  Q8 (3) |  |
| gravitational field strength is defined as the net force per unit mass at a particular point in the field  *This includes applying the relationships* | Q3 (5)  Q6 (4) |  |
| objects with mass produce a gravitational field in the space that surrounds them; field theory attributes the gravitational force on an object to the presence of a gravitational field  *This includes applying the relationship*  Fweight = m g |  |  |
| *Artificial satellites are used for communication, navigation, remote‐sensing and research. Their orbits and uses are classified by altitude (low, medium or high Earth orbits) and by inclination (equatorial, polar and sun‐synchronous orbits). Communication via satellite is now used for global positioning systems (GPS), satellite phones and television. Navigation services support management and monitoring of traffic and aircraft movement. Geographic information science uses data from satellites to monitor population movement, biodiversity and ocean currents.* ***(SHE)*** | Q3 (2)  Q6 (2) |  |
| Newton’s Law of Universal Gravitation is used to explain Kepler’s laws of planetary motion and to describe the motion of planets and other satellites, modelled as uniform circular motion  *This includes deriving and applying the relationship* | Q6 (6) |  |
| Question from prior topics | Q4 (7) |  |
| **TOTAL** | 8 questions  63 marks |  |