

Unit Code: H240/03
Qual Name: A level Mathematics
 A
Qual Title: Pure Mathematics
 and Mechanics

Question Set	Q. No	Total Marks	AO	Spec Ref.	Topic	Question Subject, If required
1	1	3	1	1.03	Coordinate Geometry in the x-y Plane	Finding the centre of a circle from its equation.
1	2	3	1	1.02	Algebra & Functions	Solve an equation involving the modulus function.
1	3	6	3(PS)	1.02	Algebra & Functions	Solving linear and quadratic inequalities.
1	4	8	2	1.02	Algebra & Functions	Composite functions. Quadratic in function of the unknown.
1	5	13	2, 3(PS)	1.08, 1.09	Integration, Numerical Methods	Numerical integration - trapezium rule. Integration by substitution.
1	6	8	2	1.05	Trigonometry	Manipulation of trigonometric identities.
1	7	9	2	1.08	Integration	Solve a d.e.with variables separable.
2	1	6	3(M)	3.02, 3.03	Forces & Newton's Laws	Newton's Second Law used with vectors. Constant acceleration formula with vectors.
2	2	9	3(M)	3.04	Moments	Forces in equilibrium. Forming and solving a 'moment equation'.
2	3	11	2, 3(PS), 3(M)	3.03	Forces & Newton's Laws	Resolving forces.
2	4	10	2, 3(M)	3.02	Kinematics	Non-uniform acceleration.
2	5	14	2, 3(M)	3.03	Forces & Newton's Laws	Connected particles on an inclined plane. Limiting equilibrium.
3	1	2	1	1.05	Trigonometry	Use of the sine rule.
3	2	8	3(PS)	1.02, 1.03	Algebra & Functions, Coordinate Geometry in the x-y Plane	Finding the centre of a circle from its equation. Quadratics.
3	3	7	1	1.02	Algebra & Functions	Solve an inequality involving the modulus function. Transformations.
3	4	14	2	1.07, 1.08, 1.09	Differentiation, Integration, Numerical Methods	Product rule, Newton-Raphson, Trapezium Rule
3	5	9	2	1.05	Trigonometry	Proving a trigonometric identity.
3	6	10	3(PS)	1.08	Integration	Using a definite integral to obtain an area. Partial fractions. Logarithm laws.
4	1	4	1	3.02	Kinematics	velocity-time graph.
4	2	10	3(M)	3.02	Kinematics	Motion of a projectile.
4	3	9	3(M)	3.03	Forces & Newton's Laws	Connected particles and an inclined plane.
4	4	13	3(PS)	3.03	Forces & Newton's Laws	Forces as vectors with Newton's Second Law.
4	5	14	2, 3(M)	3.03, 3.04	Forces & Newton's Laws, Moments	Taking moments to get a normal contact force. Resolving forces. Friction condition.
5	1	2	1	1.05	Trigonometry	Use of $\frac{1}{2}ab\sin C$ formula.

Question Set	Q. No	Total Marks	AO	Spec Ref.	Topic	Question Subject, If required
5	2	3	1	1.02	Algebra & Functions	Describing graph transformations. The exponential function.
5	3	11	2	1.02	Algebra & Functions	Range of a function. Inverse, composites.
5	4	11	2	1.07, 1.09	Differentiation, Numerical Methods	Condition for a point of inflection. Sign-change, Newton-Raphson
5	5	12	2	1.07, 1.08	Differentiation, Integration	Parametric equations.
5	6	11	2, 3(PS)	1.02, 1.07	Algebra & Functions, Differentiation	Implicit differentiation involving the product rule. Simultaneous and quadratic equations.
6	1	6	3(M)	3.02	Kinematics	Constant acceleration formulae with vectors.
6	2	7	3(PS)	3.02	Kinematics	Language of kinematics. Non-uniform acceleration.
6	3	13	3(M)	3.02, 3.03	Kinematics, Forces & Newton's Laws	Constant acceleration with connected particles.
6	4	11	3(PS), 3(M)	3.03, 3.04	Forces & Newton's Laws, Moments	Taking moments. Resolving forces.
6	5	13	2, 3(PS), 3(M)	3.02	Kinematics	Motion of a projectile.