

Viscosity of gases and liquids, and its dependence on temperature; surface tension and its variation with temperature.

A candidate in this subject will be required to present a certificate from the Principal of the institution attended that he has carried out a course of practical work of at least thirty hours' duration based on the above prescription and that his attendance and work have been satisfactory.

Applied Mechanics I (a)

Statics.—Units of measurement of force; simple stress, strain: Hooke's law; Young's modulus of elasticity; composition and resolution of forces in one plane; levers; moments and couples; centre of gravity; equilibrium of a particle and a rigid body under forces in one plane; forces in simple frames; friction; simple machines.

Dynamics.—Uniform and uniformly accelerated motion in a straight line; relations between force, mass, and acceleration; speed-time graphs; uniform circular motion; centrifugal force; impact forces; energy and the principle of work; power; units and dimensions.

Fluid Mechanics.—Pressure on plane areas immersed in a liquid; principle of Archimedes; centre of pressure; the barometer; specific gravity and density.

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Applied Mechanics I (b)

Statics.—Moments and couples; levers; stability. Machines. Application of equilibrium to framed structures and beams; modulus of rigidity; torsion; bending; simple bending moment and shear force diagrams.

Friction.—Kinetic friction; tractive force of a locomotive; rolling friction; angle of rest.

Dynamics.—Simple harmonic motion; pendulum. Relative motion, vector and scalar quantities; motion on an inclined plane. Impulse; momentum; change of momentum; moment of inertia; conservation of energy; conservation of linear momentum.

Fluid Mechanics.—Hydraulic press, jack, lift, crane. Bernoulli's theorem; flow through an orifice.

A candidate in this subject will be required to present a certificate from the Principal of the institution attended that he has carried out a course of practical work of at least fifteen hours' duration based on the above prescription and that his attendance and work have been satisfactory.

Applied Mechanics II

Statics.—Application of funicular polygon to roof trusses, structures. Polygon of forces applied to cranes, winches, &c. Transmission of motion and power; belts, ropes, gearing.

Dynamics.—Further problems on rate of change of momentum; impact; further problems on motion in a plane; circular motion and harmonic motion; centrifugal force, balancing, balancing of rotating masses; reciprocation. Piston motion, quick returns, links, cams. Instantaneous centre. Rectilinear motion of a body under a constant or variable force; equation of motion of a particle. Rotation and oscillation of a body about a fixed axis.