PHY FORM TWO C.A.T MARKING SCHEME

1. (a) Reading $= 6.9 + (0.01×4)$

= 6.94 cm

 Diameter $= 6.94-0.22$

 = $6.72 cm$

(b) - it can measure internal dimension

 - it can measure depth of blind holes

1. Pressure exerted at one point of a liquid is transmitted equally to all other parts of enclosed liquid.
2. (a) single stroke method

(b) X- south

 Y - North

1. (i) Electrical method

(ii) A – North

 B - South

1. 65,000g x 1000

65,00,000mg ✓Either step

* 1. x 107mg ✓ (A.O Accept without units)
1. Density = $\frac{120}{20×2}$

= 3 g/cm3

1. (a) (i) The moment of al force is defined as the product of the force (F) and the perpendicular distance(d) between the point of support and the line of action of the force.

 (ii) Moment = Force x distance

 = 10 x 10 x 1.2

 = 120Nm

F

0.1m

50cm

100cm

0.5m

60cm

0.75N

 (b) Clockwise moments = Anticlockwise moment

 0.75N x 0.5m = F x 0.1

 0.375 = 0.1F

 F = 0.375

= 3.75N

 0.1

1. (i) B

(ii) A

1. (a) Let the mark be *x*

$$0.2\left(x-20\right)+ 1\left(x -50\right)= 1.4\left(90 – x\right)$$

$$0.2x-4+x-50=126-1.4x$$

$$0.2x+x+1.4=126+4+50$$

$$2.6x=180$$

$$x=69.23 cm mark $$

(b) T = 0.2 + 1 + 1.4

 = 2.6 N

Object

1. (a) Nuetral point is a point within the magnetic field where the effect of magnetism cannot be felt.

(b) A – North

 B – South

 C – South

 D – North

(c) C is stronger

(d) The magnetic field lines in C are closer than B

(e) - Stroking method

 - Electrical method

(f)

**N S**

(g) (i) Steel is a hard magnetic material while iron is a soft magnetic material

 (ii) a. Iron

 b. Steel

1. (a) (i) clean water has got a stronger surface tension

(ii) to provide enough area for maximum spreading of the oil.

(iii) If it had not settled the drop wont spread by force of gravity, other forces will be a factor.

(iv) to make the boundary between the oil and water visible. - for clarity.

(b) (i) Volume = $\frac{4}{3}×\frac{22}{7} ×\left(\frac{0.35}{2}\right)^{3}$

$$=0.0225 mm^{3}$$

 (ii) Area = $\frac{22}{7}×\left(\frac{14}{2}\right)^{2}×100 mm^{2}$

 = 154 $cm^{2}$

 (iii) Diameter = $\frac{0.0225 mm^{3}}{154}$

 = $1.54 ×10^{-4}mm$

 = $1.54 ×10^{-7}m$

 (iv) Volume = $\frac{4}{3}×\frac{22}{7} ×\left(\frac{0.000154}{2}\right)^{3}$

 =$1.77×10^{-12}mm^{3}$

(v) No. of molecules = $\frac{0.0225 }{1.77×10^{-12}}$

 = 1.27 $10^{10} molecules$