PHYSICS FORM TWO NECTA 1992.

Solutions from: Maktaba by TETEA

by Yohana Lozaro

1.

i	ii	iii	iv	v
C	C	A	C	A

2. (i)Pitch

(ii)Motor

(iii)center of mass of the body

(iv) 6.25.

(v)Frictional force.

3.(i) (a)Emf = (1.5 x1.5)/(1.5 + 1.5)= 0.75 V

(b) Resistance, R = emf/current

= 0.75/0.5 = 1.5 Ω

(ii))Laws of reflection states that

- The angle of incident equals to angle of reflection
- The incident ray,reflected ray and the normal all acts on the same plane.

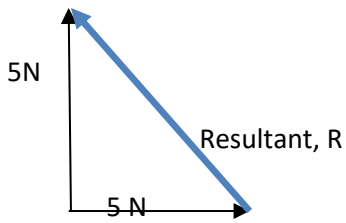
(iii)Position B will give the most correct reading.

(iv)

(v)(a)A ray is a single line of light while beam is the group of many light rays.

(b)Umbra is the total shadow while penumbra is the partial shadow.

4. (i)



Apply Pythagoras theorem,

$R^2 = 5^2 + 5^2$, resultant is 7.07 N

(ii)-proton, positive charge

-electrons, negative charge

-neutrons. No charge

(iii)(a)Latent heat is the heat required to change the state of a substance.

(b)Boiling point is the temperature at which the liquid boil.

(iv)Power = work done/time

= (55 x 10 x 15 x 0.15)/5.5

= 225 W

(v)-inclined plane

-screw jack

-wheel and axle

-hydraulic press

5. (a)Law of flotation states that "a floating body displaces its own weight of fluid on which it floats"

(b)RD = (0.45 – 0.41)/(0.45 – 0.39) = 0.67

Then, specific gravity = density = 0.67 x 1000 kg/m^3

= 667 kg/m^2

7. (a) effective resistance for parallel, R = (4 x6)/(4 + 6)) = 2.4Ω

(b)Total resistance, R_T = 2.4 + 2 = 4.4Ω

(c)Current at 2Ω = total current of the circuit

= p.d/total resistance

= 50/4.4 = 11.36 A

8. (a)Because there is high rate of heat transfer between the barefoot and the floor, than with the carpet.

(b)-used in railway constructions

- used in bridge constructions.

(c)Heat, Q = mCΔt

Q = 6 x 4200 x (10 – 70)

= 1512000 J

9. (a)Law of electromagnetic induction states that “emf is induced whenever there is change in magnetic flux linking the conductor”

(b)Since 1500/250 = 4500/v

Voltage to secondary coil is 750 V