PHYSICS FORM TWO NECTA 2015

Solutions from: Maktaba by TETEA

by Yohana Lozaro

1.

i	ii	iii	iv	v	vi	vii	viii	ix	x
B	D	C	B	C	B	D	C	D	B

xi	xii	xiii	xiv	xv	xvi	xvii	xviii	xix	xx
C	A	A	C	B	C	D	A	C	B

2.

i	ii	iii	iv	v	vi	vii	viii
E	G	K	C	F	I	H	A

3.(i)volume

   (ii)Constant velocity

  (iii)temperature

 (iv)turning moment

 (V)magnetic declination

4(a)Capillary action (sometimes capillarity, capillary motion, capillary effect, or wicking) is the process of a liquid flowing in narrow spaces without the assistance of, or even in opposition to, external forces like gravity.

 (b)(i)The method of developing the properties of a magnet in a magnetic substance is known as magnetization.The method of removing of the magnetic properties of a magnet is known as demagnetization.

   (ii)Luminous objects:- The objects that can emit light energy by themselves are known as luminous objects. Objects like the sun that give out or emit light of their own are luminous objects. ... Objects like the moon that do not give out or emit light of their own are Non- luminous objects.

(iii)In regular reflection, light reflected from a smooth surface in a definite direction. In irregular reflection, light reflected from a rough surface in all directions and not in a definite direction. ... Observe that when light is reflected from a smooth mirror then it is in a definite direction or in all directions.

(i)conductor is a body which allow current and heat to pass through it while insulator does not allow.

5.(a)(i)Friction is the force that opposes motion

(ii)Effects of friction

-It produces heat, that helps in heating parts of any object or to warm ourselves. It also causes loss in power. It produces noise during any kind of operation. It's because of friction that we're able to walk, run, play, etc.

(b)(i)density, of a substance is its mass per unit volume. kg/m³

(ii)Applications of density

- Ships and Submarines. One well-known application of density is determining whether or not an object will float on water.

-Oil Spills

-Plumbing Systems

-Airplane Weight Distribution.

6.(a)First aid is the care a sick or injured person gets before they get full medical treatment.

(b)(i)

(ii)danger of electric shock.

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(iii) toxic

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(iv)Flammable

7(a)(i)-v = u + at

   -v² = u² + 2sa

  -s= ut +½at²

    (ii)The difference between an elastic and an inelastic collision is the loss or conservation of kinetic energy. In an inelastic collision kinetic energy is not conserved, and will change forms into sound, heat,

radiation, or some other form. In an elastic collision kinetic energy is conserved and does not change forms.

(b)(i)The principle of conservation of momentum states that if two objects collide, then the total momentum before and after the collision will be the same if there is no external force acting on the colliding objects.

(ii)Let common velocity be v

Since the bodies moving in opposite direction.

4 x 2 - 5 x 1 = (4 + 5)v

Common velocity = 0.33 m/s

8.(a)(i)Pitch is the distance between screw threads and is commonly used with inch sized products and specified as threads per inch.

(ii)Velocity ratio of simple machine is defined as the ratio of distance travelled by effort to the distance travelled by load in the machine.

(b) velocity ratio = 2πL÷pitch

= 2π x 0.21 ÷ 0.001

= 1318.8

(ii)MA = VR/eff.= 1318.8/0.2

MA = 6594

Then, effort = load/MA

= 528÷6594

= 0.08 N

9.(a)(i) Potential energy is the energy possessed by the body due to its position.

(ii)PE =MGH

initially,   0.5 x 10 x 10 = 50J

On rebound, PE = 50 - 30 = 20J

then, 20 = 0.5 x 10 x h

Height is 4 m

(b)(i)The principle of energy conservation states that energy is neither created nor destroyed. It may transform from one type to another.

(ii) potential energy to kinetic energy.

10.(a)(i)A real image is the collection of focus points actually made by converging rays, while a virtual image is the collection of focus points made by extensions of diverging rays.

(ii)Number of image = 360°/angle - 1

= (360/60)- 1

= 5 images

(b)(i)Applications of Periscope

-It is applicable in submarines to determine the distance of a torpedo. ...

-It is useful in the nuclear reactor to observe the chemical reactions.

-In military purposes, periscopes are useful to observe from their hiding position.

-Tanks and other armoured vehicles use it to inspect the surrounding.

(ii)The image formed in a periscope is virtual without lateral inversion because 2 lateral inversions cancel each other. Hence, the image formed in a periscope is virtual without lateral inversion.