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PHYSICS
PAPER 2
July/August 2008

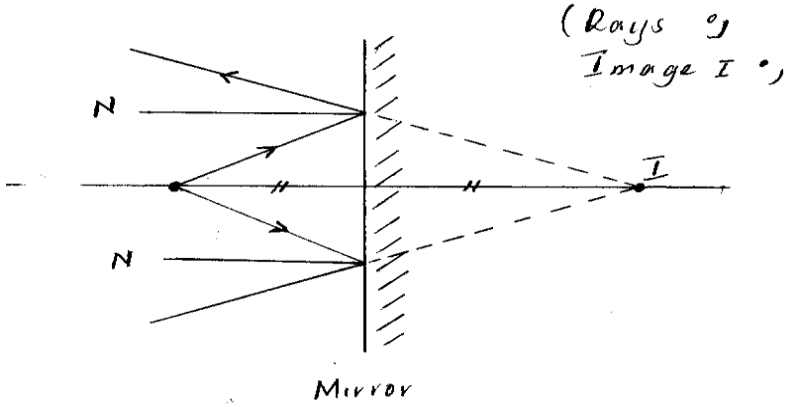
LARGER BUNGOMA DISTRICT MOCK EXAMINATION
Kenya Certificate of Secondary Education 2008

MARKING SCHEME

PHYSICS
Paper 2
July/August 2008

SECTION A: (25 MARKS)

1.



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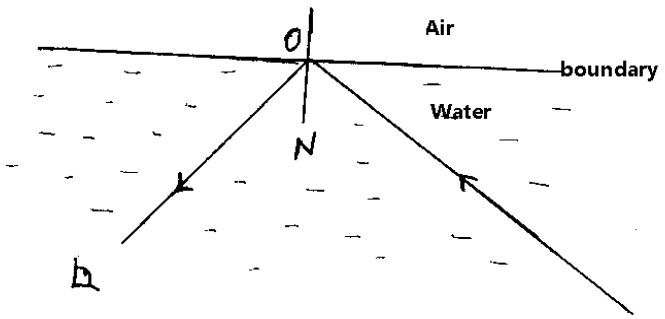


At O there is total internal reflection because the angle of incidence is greater than the critical angle of water air. ;

3. Infrared radiations;

4. Let the distance between the two cliffs be x

$$\text{Speed} = \frac{Distance}{Total time} = \frac{2d}{t}$$

$$\text{From cliff A } 340 = \frac{2xX_1}{2}$$

$$X_1 = 340\text{m} \quad ;$$

$$\text{From cliff B } 340 = \frac{2xX_2}{5}$$

X_2= 850m

Distance between cliffs

= 340 + 850

= 1190m;

5. Magnetism is easily induced in them; The dipoles of the Keepers form a closed loop with those in the magnets hence protecting the magnets from being demagnetized;

6.

Correct field;

✔ Direction of force;

7. Using the polythene rod charge the electroscope
- Bring either of the bar in contact with the cap;
of the electroscope and note the effect on the leaf;
- The bar that do not discharge either electroscope is an insulator;

8. Relative density of the acid;
- The voltage output;

9. Type of radiation

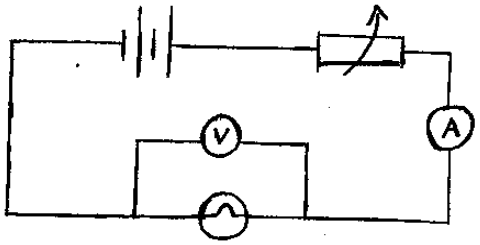
Microwaves ;

Infrared ;

X-rays ;

10. Fuse or earth wire. Either;

11.



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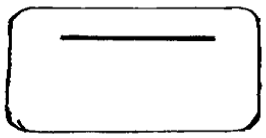
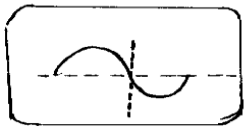
12. When the thumb and the first two fingers of the left hand are held at right angles to each other and the first finger points in the left hand are held at right angles to each other and the first finger points in the direction of the field and second finger pointing in the direction of current, then the thumb will point in the direction of the motor force on the conductor;.

13. (a)





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(b)

SECTION B (55 MARKS)

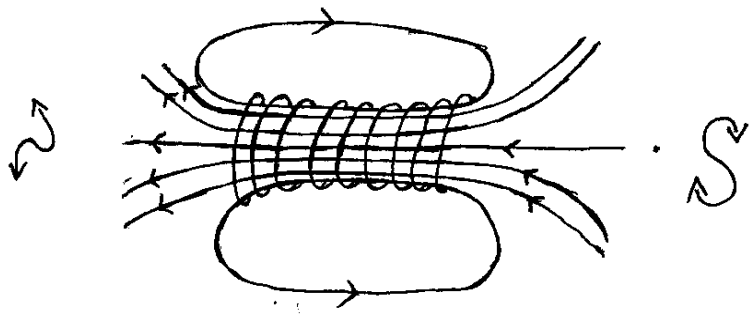
14. (i) When the switch is closed current flows through the coil causing a magnet field; that repels the magnet toward the chime bar. The end of the coil adjacent to the sound pole of the bar magnet acquires a South pole;

(ii) He should increase the number of turns in the coil;
- Use a dc source of higher voltage to increase current,
- Introduce a soft iron core in the coil. Any two.

(iii) Electrical energy magnetic ;

Potential energy sound energy;

(b)



Field outside;

Field inside;

(ii) Resistance in the circuit increases;

(iii) The current reduces;

(iv) Becomes less stronger;

(c) (i) There must be a change in the magnet flux of the primary coil linked to the secondary coil;
with D-C voltage there will be not change in the flux linked to the secondary coil hence No induced Emf in it;

(ii) Step up the voltage to higher values for transmission which minimizes power loss;
- Step down the higher voltage to voltage required by the consumers;

15. (a) A – Thin plastic;
B – Aluminium;
C – Lead lined;

Lead will stop both γ – radiation and alpha particles

γ – radiation are very penetrative

(b)

Date	Mass original radioactive subsatance left	
1 March 1992	8kg	;

1 March 1996 4kg ;

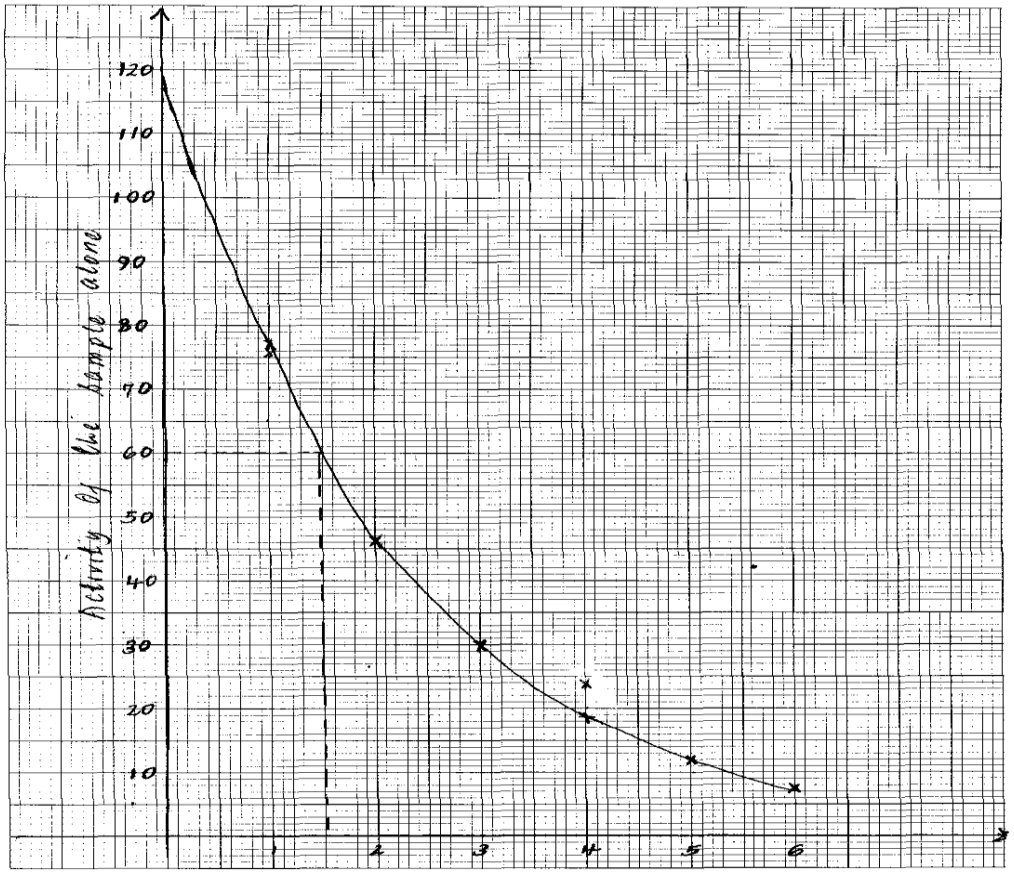
1 March 2004 2kg ;

(c) i)

Time in years	0	1	2	3	4	5	6
Activity due to sample	120	76	48	30	19	12	8

;

(ii) This are naturally existing radiation which cause a counter to register, some readings in the absence of a radioactive source;



(iii) A – I, S – I, P – I, C – I 4mk

(iv) t ½ = 1.5 yrs;

Evidence on the graph a must.

(d) 80 t ½ 40 t ½ 30 t ½ 20 t ½ 10 ;

or use of formula

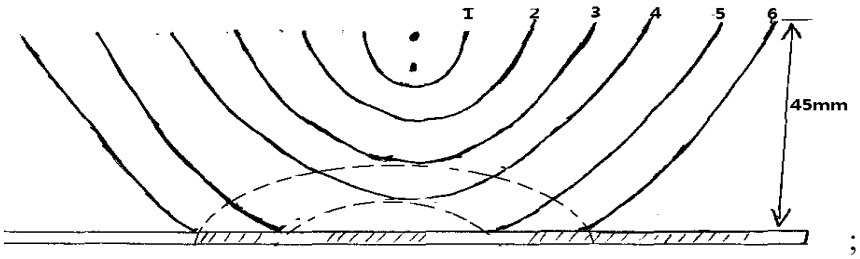
4 half lines have passed.

Hence Age of the bone

= 4 x 5700

= 22800 yrs;

17. (a)



;

Correct reflection 1mk

(ii) $4\lambda = 45$

$\lambda = 11.25$ 1mk

(ii) $V = f\lambda$

$60 = f \times 11.25$ 1mk

$f = 5.333Hz$ 1mk

(b) i) Cornea - U ;

Retina – Q ;

(ii) I – increases in size to accommodate more light. ;

II – Increase the amount of light entering the eye ;

(iii)

Part of eye	Description
Retina Q	Sensitive to light
Optical nerve R	Carries signal to brain
Cilliary muscles S	Alters the size of the pupil

(v) Relaxation of the cilliary muscles muscles;

Enables the lens to increase its focal length, hence focus a distant object. ;

- Contraction on the other hand reduce the tension in the lens, making it have a shorter focal length, thus focusing near objects,

17. (a) The energy of the election is despated at the lamp
wire due to its resistance as heat ;
- which the wire get red hot and the white hot it gives out
light and heat energy ;

$E = I^2 Rt$;

(ii) $E = VIt$;
$= 12 \times 3 \times 20$;
$= 720J$;

(b) (i) The resistance of the wire increase with increase in current and hence the potential difference a cross it ;
- The wire becomes hotter increasing the opposition to the
Flow of current ;
- The wire is a non ohmic conductor (doesn't obey ohms law);

(ii) I : Resistance doubles ; since
Resistance $\propto$ length;
II – The resistance reduces to ¼ the original value ;
Resistance $= \frac{\rho L}{A}$
But $A = \pi(\frac{D}{2})^2$

55 marks