KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

ALLIANCE GIRLS HIGH SCHOOL
232/1
PHYSICS
PAPER 2
MARKING SCHEME

SCHOOLS NET KENYA
Osiligi House, Opposite KCB, Ground Floor
Off Magadi Road, Ongata Rongai | Tel: 0711 88 22 27
E-mail:infosnkenya@gmail.com | Website: www.schoolsnetkenya.com

ALLIANCE GIRLS HIGH SCHOOL KCSE TRIAL AND PRACTICE EXAM 2016

Paper 2

MARKING SCHEME

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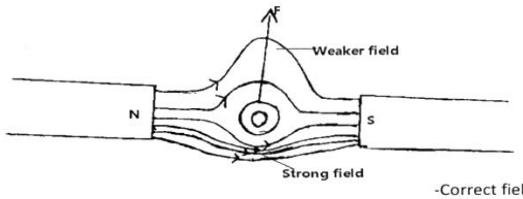
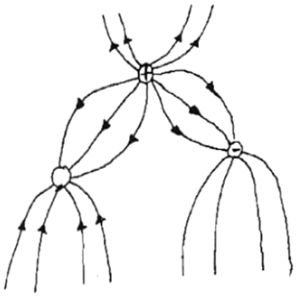
1. Recline property/light travels in a straight line;
2. Magnetism is easily induced in them. The dipoles of the keepers form a closed loop with those in the magnets hence protecting the magnets from being demagnetized;



-Correct field;

- Direction of force;

4. Relative density of the acid;
   The voltage output;
5. 

   Pattern 1 mk

   Direction 1 mk

6. 2 correct rays=2mks
7. V=fλ

   But f= $\frac{I}{T} = \frac{1}{0.5} = 2.4Hz$

   $\therefore$ V=2.0x20
8. $R_T = \frac{2}{2} + 2 = 3\Omega$

   $I = \frac{V}{R} = \frac{3}{3}$

   =1A
9. Gamma rays have mush shorter wavelength than x-rays:
   Gamma rays originated from nuclei of atoms while x-rays are as a result of orbital electron jumps;
10. Kwh used in a day=(3x24)+(0.75x5x24)
    Total cost =162x0.8
    Ksh.129.60
11. (a) Inverted
    Real
    Diminished

    (b) $\frac{I}{f} = \frac{1}{30} + \frac{1}{15}$

$$\frac{I}{f}=\frac{3}{30}$$

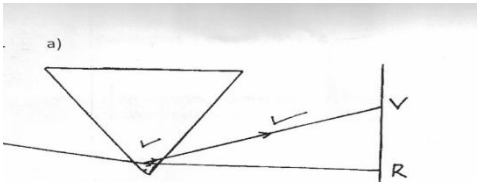
$\therefore$ f=10cm

12. E= $h\frac{C}{\lambda}$

$$\lambda=\frac{hc}{E;}=\frac{6.663x10^{-34}x3.0x10^{8}}{3.37x10^{-19}}$$

$=5.902x10^{7}$m;

13. (a)



(i) V and R correctly located

(iii) Yellow colour

(b) (i) Reflection is the bouncing back of light ray when it hits a surface, while refraction is the bending of light ray when it moves from one medium to another

(ii) $\frac{\sin i}{\sin r}=n$

$$\frac{\sin 42}{\sin 30}=1.34$$

$$\therefore \frac{1}{n}=\frac{\sin 25}{\sin\theta}$$

Sin θ=n sin 25^{o}

=1.34sin 25

Θ=34.5^{o}

(iii) Laws of refraction

The incident ray, refracted ray and the normal at the point of incident all lie in the same place

Ratio of sine of angle incidence to the sine of angle of refraction is constant for a given pair of media;

(iv) Light must be moving form a denser to a less dense medium;

The angle of incidence must be greater than the critical angle;

14. (a)(i) Spontaneous random emission of particles from the nucleus of an unstable nuclide.

(ii) C -radiation B-Gamma A-Beta radiation by flemmings left hand rul

(iii) I:Z

II:Z

(b) Half life=x

No of halfsliges =210/x

Initial count rate=97-25=72c/s

Final count rate=34-25=90c/s

Rem. Fraction = 9/72 = 1/8

$$N=No\left(\frac{1}{2}\right)\frac{210}{t}$$

$$\left(\frac{1}{2}\right)^{3}=\left(\frac{1}{2}\right)\frac{210}{t}$$

$3=\frac{210}{3}=t=\frac{210}{3}=70\sec x=\frac{210}{3}70s$ half-life of material =70s

15. (a) No deflection

No change in the flux linking the secondary coil

Len'z law;

(b) States that: the direction of the induced current is always such that it opposes the change of magnetic flux which produces it

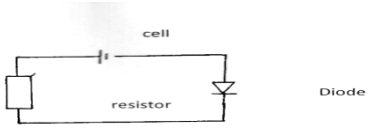
(i) In semi conductor conduction is by holes and electrons while it conductors it is by electrons only

(ii) Semi conductor-silicone/Germanium

Conductors-copper, tin etc

(iii) Is an impurity which when introduced into a semi conductor (during doping) provides extra electrons for conduction

(iv)



iv) There is conduction because the diode is forward biased √l

(a) The live lead brown should be connected to the fuse; whereas here the neutral lead (blue) has been connected,to it.

- In any case the blue lead has been connected to the wrong end of the fuse. As connected here the lead goes directly to the pin and the fuse is not in the circuit;
- Too much insulation has been removed from the earth lead. There is a danger of it' shorting' to the brown lead;;
- The insulation round the entire cable has been stripped back too far; It should go under the cable clamp. As shown here any pull on the cable is taken by the three leads.

Any two correct ; ; 4mks

b. (i) It would be possible for someone standing in the bath water to grasp the live part of the fire,

- They are likely to have wet hands and thus make good contact with the element and the earth through the water.

Anyone; = lmk

(ii) It should be placed on a wall out of reach, from the both and should be Operated using a switch with a hanging cord

(c) R=0.1x50

=5Ω

Power loss = 1^2R;

=60^2x5;

=3600x5

=18000 watts; (3mks)

17. (a)(i) Is the minimum amount of energy needed to dislodge an electron from a metal surface

(i) Is the minimum frequency required to just remove an electron from a metal surface

(b) (i) 2.5x1014Hz

(ii) $gradient = \frac{1.8-0.2}{(.5-3.0)x10^{14}}$

$$\frac{h}{e} = \frac{1.8-0.2}{(.5-3.0)10^{14}}$$

$$\frac{1.8-0.2x1.6x10^{19}}{(.5-3.0)x10^{14}}$$

=4.267x10^{-34}JS