**PHYSICS**

**232/2**

**PAPER 2 – 2019 vb**

**MARKING SCHEME**

**WANGU CLUSTER EXAMINATION**

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

1. A virtual image is an image that cannot be formed on a screen.$√$
2. I) soft magnetic material – easily magnetised and demagnetised hard magnetic material- difficult to magnetise and demagnetise.$√$

ii)

1. Divergence reduces /leaf $√$collapses due to the charges are /concentrated on sharp pursuit $√$and discharges the electroscope.
2. I) X – south pole Y- north$√$

Ii – increasing size of current

* Use of u- shaped bar $√$
* Increasing number of turns
1. Two correct rays $√$
* object$√$
1. I) G.M.T/cloud$√$ chamber/ photographic film.

ii) visible light$√$

1. 0.8/2 = 0.45$√$

F = 1/T = 1/0.4$√$

F = 2.5 Hz$√$

1. I) current flows in y $√$

ii) p.n function y is forward bias$√$

1. n= 1/sin c $√$ sin $θ$ = 1/1.48$√$

$θ$ = 42.51ᵒ$√$

1. a – 234$√$

b - 82$√$

1. reflected sound
2. increasing area of overlap
* decreasing separation distance
* use of electric material between the plases.
1. I) 1/f = 1/r +1/4 -1/10 = 1/v +1/15

-1/10 – 1/15  = 1/v 1/v = -f/30 = -1/6

 V= -6CM$√$

II) M = V/4 = 6/15 $√$ = 0.4

OR = -6/15  = 0.4

b) i) short slightness$√$

ii) use of diverging lens$√$

c) i) rays must be moving from a denser medium to a less dense medium.

The angle of incidence in denser medium must be greater than critical angle.$√$

ii) total internal reflection

* Right angle triangle indicated
1. a) The law states that current flowing through a conductor is directly proportional to p.d provided that temperature and other physical condition are kept constant.

b) i) 1/R  =1/2 + 1/2 +1/3  = 0.75$√$

RT= 4 + 0.75 +0.25 = 5

II) FT = VT  = 12 = 2.5A

 RT 5

V = 2.4 X 0.75 = 1.8V$√$

C) To reduce power loss$√$

d)i) F – ring main circuit $√$

ii) A –neutral wire

 B – live wire

ii) T o breaks circuit in excess current$√$

iv) Earthing prevents one from getting electric shock$√$

1. a) Lenz’s law states that the direction of induced e.m.f is such that the induced current it causes to flow produces a magnetic effect that apposes change producing it.$√$

b) i) The pointer of galvanometer deflects to maximum and back to zero.

- When switch is closed. Magnetic flix change in posy primary coil links B (sec) inducing current in B.

II) The pointer of galvanometer/ deflects to max in opposite direction and back to zero.

c) i) Primary coil are thicker than sec coils due to higher current in the primary coils

i) NP = VP 400 = 220

 NS V3 1600 VS

VS  =880V

III) P.O = VS IS

1000 = IS X 880$√$

IS = 1.136a

iv) P.I = vp IP

1000 = Ip x 220$√$

IP = 4.545 A$√$

1. – a) (i) - this is minimum energy of radiation required to dislodge an electro from the metal surface.
2. – intensity of mediation

-Work function /type of metal

- frequency of radiation

b) K.E = E –W

= hf – wo

= 6.63 x 10-34 x 3.0 x 1015 - 6.4 x 10-19

K.E = 1.989 X 10-18 – 6.4 X 10 -19

= 1.3 49 X 10-18 J$√$

e)No. Of half life = 390 – 3 half lifes

 130

1 x 1020 ------- 0.5 x10 20 -----------0.25 x 1020 ---------0.125 x 1020

No decayed = (1 – 0.125) x 1020

= 0.875 x 1020 atoms = 8.75 x1019 atoms$√$

1. Alpha radiation$√$
* It is massive and causes heavy ionisation.
1. A) i) Grid – controls the intensity of the electrons/brightness of the spot on the screen
2. Variable p.d – focus / converge the electron beam onto the beam.

b> i) T = 4 x 20 = 80ms

f = i/t = 1/80 x10-3 = 12.5Hz$√$

ii) peak voltage = 200 x 1 = 200v$√$

c.i) B – anode

ii) it has a high melting point

1. Some of electrons k.e is converted to heat energy
2. The intensity of x-rays increases