**MWAKICAN JOINT EXAMINATION 2016**

**PHYSICS PAPER 232/2**

**MARKING SCHEME**

1. 
2. Reduces the size of the zinc plate. ✓1
3. Cannot be formed on the screen. ✓1
4. (i) Requires less attention.

(ii) They are light and easily portable.

(iii) Large currents can be drawn from them

(iv) They can be kept in a discharged condition for a very long time before the cells are ruined.

***Any 1 (1 mark)***

1. 
2. V = IR ✓1

1.5 = (10 + r) x 0.12

1.5 = 1.2 + 0.12r

 = ✓1

= 2.5Ω

1. (i) Critical angle must be exceeded ✓1

(ii) Light should be moving from a more denser to a less denser medium.

+

+

+

+

+

+

+

+

+

+

Metallic body

Ground

+

+

+

+

+

+

1. P = = = 36W
2. 20μF + = 40μF

½ ✓

½ ✓

½ ✓

V

A

½ ✓

X

✓ 1

Attraction ✓ 1

✓ ½

✓ 1

O

F

C

14. R = = 30

 R = = ∴ =

 50e =

 e = 1.08 x 10-3

15.(i) Scan



(ii) = = 0.03c/v

(iii) Capacitance – Ability of a capacitor to store charge.

(iv) Work done = Area under the graph for 0.1 to 0.3C

 x 6.4 x 0.2

16. (a) (i) Frequency – The number of oscillations per second ✓ 1

 (ii) Wavelength – Distance between two successive crests or troughs.

 (b)

Frequency (Hz)

 ✓1

Wavelength

 (c) ✓ 1

 (d) Equal speed ✓ 1

 Equal amplitude ✓ 1

 Same frequency ✓ 1

 (e) (i) 0.2m

 (ii) T = 0.4 seconds

 f = ✓ ½

 = = 25Hz ✓ ½

 (f) 2.42 = ,

 V = ✓ 1, V = 1.24 x 108m/s

17. (a)V=IR→ The current flowing through a conductor is directly proportional to the potential different

 across it provided temperature and other physical conditions are kept constant.

(b)(i) R= =

= 35.71Ω

(ii)Since the graph is a straight line✓1 the conductor obeys Ohm’s law✓1

(iii)

* Length of conductor.
* Nature of material.
* Cross –sectional area of the conductor.
* Temperature difference between the ends of a conductor.

 Any 3(1mark each)

(iv) V = IR, R = = ✓ 1= 2Ω ✓ 1

 18 (a) A device used for regulating excess current in a circuit.✓1

(b)Has low melting point✓1

(c)Power is the energy change rate of 1 joule✓1 per second or power is the flow of energy per second.

(d) (i) P = ✓ 1= = 60.63✓ 1W

 (ii) P = VI, I = ✓ 1 = ✓ 1 = 0.25A

(e)So that the liquid being heated totally covers the heater hence energy absorbed by the liquid is distributed throughout the liquid by convection.✓1✓1

19(a)A form of iron ore which attracts some materials when they are brought near it.✓1

(b)

* Directional property.✓1
* Magnetic poles✓1

(c)Hard magnetic materials are hard to magnetise but retain magnetism for long once magnetised.✓1

Soft magnetic materials are easily magnetized and also lose magnetism easily.✓1

(d)

N

S

e) i) A

 ii) B

 iii) A – Can be used to make cores of electromagnets

 B – Can be used to make permanent magnets used in loud speakers