**SET 3**

 **PHYSICS PP2 MARKING SCHEME**

S N

S N

F

1. - Temperature must be constant.

– Any other physical condition

1. Five of them parallel but in series to remain three resistors.
2. $v =^{0.45}/\_{1.8}$

= 0.25 m/s

1. (i)is preventing devices against any external magnetic field.

(ii) in electronics

1. (i) $\sin(40)/\sin(r)$ = $1.5/1.333$

$$sin r= 0.6428 ×1.333/1.5$$

 = 0.57

$r $ = 26.830

(ii) *v* = $\frac{2.25 ×10^{8 }×1.5}{1.333}$

 = $2.53×10^{8 }$

1. c $=sin^{-1}\left(\frac{1}{1.5}\right)$

= 41.80

1. = (20 +25)2

 = 900

1. a) Capacitance is measure of the amount of charge a capacitor can store when connected to a given voltage*. (Charge stored per unit voltage)*

b) C = Rec $\left(\frac{1}{200}+\frac{1}{400}+ \frac{1}{200}\right)$

 = 80 μF

 Q = CV

 = 20 × 80×10-6

= 0.0016 C

E = ½ CV2

= 0.5 × 200×10-6 (20)2

= 0.04 J

1. (a)The current passing through a conductor is direcly proportional to the p.d across its ends, provided temperature and other physical conditions **are kept constant.**

(b)

1. I1$= \frac{36}{3}$

= 1.2 A **(3 marks)**

1. I2 = 1.5 – 1.2

**= 0.3 A**

1. E = 36 + (1.5 ×5.6) = 36 V + 8.4V

= 12.0 V

(c) – the current passing through a given conductor.

 - Resistance of the conductor

 - Total time taken

1. (a)Particles of transmitting medium vibrate in the direction of the wave for longitudinal waves but at right angle for transverse waves
2. Particles of transmitting medium vibrate in the direction of the wave for longitudinal waves but at right angle for transverse waves.

(b) (i)Wave length- 4

 Amplitude 2 cm

 (ii) Distance = 9 cm

Oscillations = 2.5

Periodic time = 0.04 s

F = T-1 = 25 Hz

C = λf

= 25 × 0.04

= 1.0 m/s

(c) (i) Speed of sound:

2.5 × c = 400 × 2

C = $\frac{400 ×S}{25}$

C = 320 m/s

**(ii)**2(x – 400) = (2.5 +2)

 320

*X*= 1120 m

(d) (i)

1. They will be reflected back as shown below

barrier

Reflected waves

1. (a) (i)

(ii)

 C F

(iii)

F

(b)

4

3

2

1

 10 20 30 40 50 60 70

(i) = 30 cm

(ii) focal length, ½ the point where m = 1

 f = 16 cm

1. (a) (i)

N

S

X

Y

1. Fleming’s lefthand rule - when the left hand is held with the thumb , the first finger and the middle finger are held mutually at right angle to one another with the first finger pointing the direction of the magnetic field, and the middle the direction of the current, then the thumb points the direction of the force experienced by the conductor.
2. When the conductor XY is at right angle with the magnetic field
3. The conductor moves in opposite direction

(b) (i) – increasing the size of the current

* Increasing the number of coils
* Using a soft iron core

 (ii) A -U shaped soft iron core

B - Spring

C - Hammer

D - Gong

 (iii) When the switch is closed, current flows in the coil magnetizing the soft iron core, it therefore attracts soft iron strip. This breaks the circuits. No current flows and the attracted strip is released, completes the circuit and the process continues once again.