TRIAL ONE EVALUATION TEST

PHYSICS PAPER TWO MARKING SCHEME

1. Angle of incidence $= \frac{70^0}{2} = 35^0$

   Angle of reflection $= 35^0$ ✓

   New angle of reflection $= 35° + (2 \times 20)°$
   $$= 75^0 ✓$$

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;

3. (a) W – Microwave ✓

   (b) Uses – Cooking

      - Communication ✓   Any one @

4. (a) Transverse waves are waves whose particles are displaced perpendicular to the direction of travel whereas longitudinal waves are waves whose particles are displaced parallel to the direction of travel. ✓

   (b) T= 2.0 sec, ✓ $f = \frac{1}{T} = \frac{1}{2} = 0.5\ hz$ ✓

5. a) speed= 2d/t
      $$= \frac{400 \times 2}{2.5}$$ ✓
      $= 320$ mls ✓

    b) $320 = \frac{2\ (x - 400)}{4.5}$ ✓

      x- 400 $= \frac{320 \times 4.5}{2}$ ✓

      X - 400 =720
      x = 1120m ✓
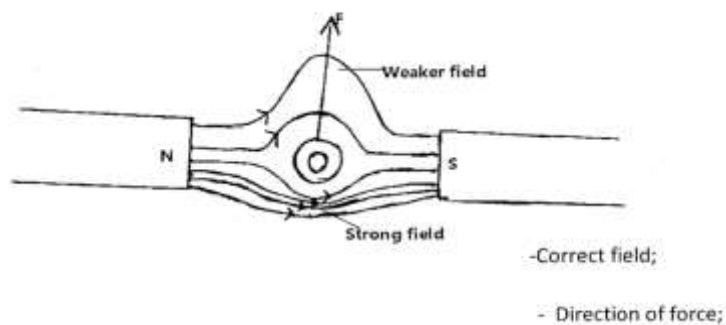
6. To concentrate the magnectic field ✓

7. More information can be transmitted at the same time since there is minimal loss of energy during transmission.

8. -number of turns on the coil ✓

   -strength of magnet ✓

9.

10.

-Correct field;

- Direction of force;

11.-The relative density✓
   -The voltage✓

12. Accumulation of hydrogen gas on the copper plate insulates the copper plate which prevents further reaction

13(a) (i) = V = IR $\Rightarrow$ R = $\frac{V}{I}$

$= \frac{12}{2}$ ✓
$= 6\Omega$✓

(ii) Y, Z are parallel
$\frac{1}{R_P} = \frac{1}{6} + \frac{1}{6}$
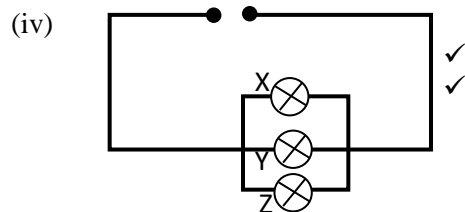$\Rightarrow P_P = 3\Omega$ ✓
X in series with P_P
$\Rightarrow R_T = (6 + 3)$
$= 9\Omega$ ✓

(iii) I $= \frac{V}{R}$ ✓
$= \frac{12}{9}$
$= 1.33A$ ✓

(iv)

(b) (i) E.m.f = 1.5V

(ii) Terminal voltage = 1.3V

(iii) R = $\frac{V}{I}$

$= \frac{1.3}{0.5}$

$= 2.6\Omega$

15. a) state two factors that determine the capacitance of parallel place capacitor

-area of plates✓

-nature of dielectric✓

-distance between the plates✓

b) *A 5µ capacitor is charged to a potential of 200v and isolated . it is then connected to a 10µF capacitor*

i) *find the resultant potential difference across combination*

$Q = Q_1 + Q_2$ | 1×10^{-3} v | $1 \times 10^{-3} = 15 \times 10^{-6}$ ✓

$Q = 5 \times 10^{-6} \times 200$ ✓ | | $1 \times 10^{-3}/5 \times 10^{-6} = $ **6667v** ✓

(*3MKS)*

ii) *energy stored in the capacitors after connection*

E= ½ x 15 x10^{-6} x 200^2✓ = 0.1 joules✓   (*2mks)*

ii0)total energy in the capacitors after connection

E= ½x 15x 10^{-6} x 66.67^2✓

$=$ 0.00333367 joules ✓   (*2mks)*

(14)(i) Long sighted. ✓

(ii) Using converging lens to shortly converge he rays from a near object on the retina ✓

(iii)
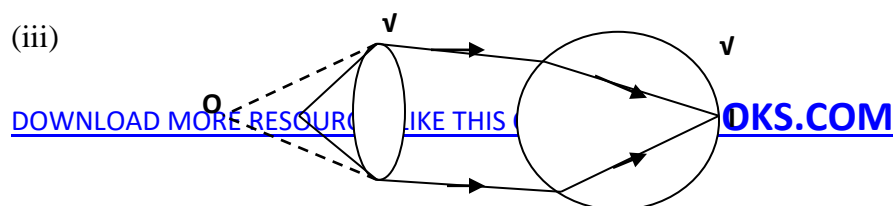
(c) Eye lens is variable, camera is fixed

a) *Give one application of capacitors*
   – smoothening rectified circuits ✓
   - Reduction of sparking in induction coils in tuning✓
   - Circuits /delay /camera flash✓ @1 mark

16   a)(i) Is to provide coherent sources √1
   ii) - Alternating dark and bright fringes√1
   -     Dark fringes due to destructive interference√1
   -      Bright fringes due to constructive interference√1

   iii) I. Increased distance between the fringes √1
   II) Coloured fringes are formed√1

   b) Sound becomes fainter√1 on cooling ,steam condenses creating√1 vacuum hence can't be transmitted √1

17.(a)   (i) Dispersion of white light ✓
   (ii) X – Red ✓
   Y – Violet ✓

   (b) (i) $_an_g = \frac{c}{V}$✓
   $= \frac{3.0 \; X \; 10^8}{1.8 \; X \; 10^8}$ ✓
   $= 1.6667$ ✓

(ii) Sin C = $\frac{1}{n}$ ✓

$= \frac{1}{1.667}$

C = Sin^{-1}0.5999

= 36.86 ✓