

GOLDEN ELITE EXAMINTIONS 2020

232/2

PHYSICS

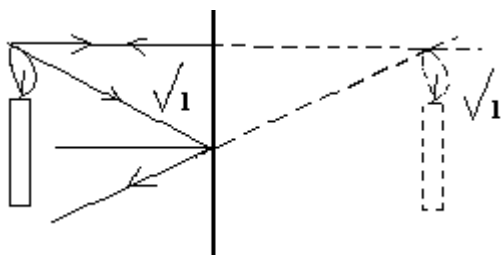
THEORY

PAPER 2

2HOURS

MARKING SCHEME

1.



2.



3. i) No. of turns
 ii) Amount of current slope of core Max 2

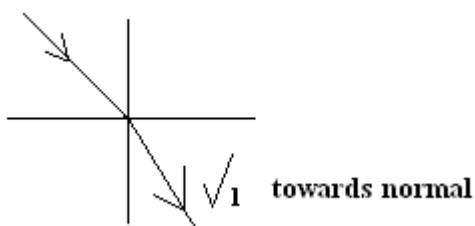
4. i) Wide view
 ii) Gives upright image

5. i) Length
 ii) Cross sectional area

6. a) $\frac{2}{100} = 0.02\text{m}$

b) $F = \frac{1}{T} = \frac{1}{8}\text{HZ}$

7. a)



b) $\frac{\sin 30^\circ}{\sin r^\circ} = 1.4$

$$r = 21.4^{\circ}$$

8. $P = VI$

$$= \frac{1}{R}$$

$$= 7 \times 7 = 49 \text{ times}$$

9. $V = F\Omega$

$$300000000 = f \times 1000$$

$$f = 3 \times 10^5 \text{HZ}$$

10. - Compare charges
- Detect charge

11. Easily magnetised & demagnetized

12. - Camera does not have iris to control amount of light as in the eye.
- Pinhole no lens while eye as a lens

13. - Progressive
- Mechanical

14. a) i) A device to store charge
ii) Ability of a capacitor to store charge.

$$\text{b) i) Series } \frac{1}{C} = \frac{1}{4} + \frac{1}{5} = \frac{5 + 4}{20} = \frac{9}{20}$$

$$\text{Parallel } C = \frac{20}{9} + 3 = \frac{20 + 27}{9} = \frac{47}{9} \mu\text{f}$$

$$= 3.2 \times 10^{-6} \text{F}$$

ii) $Q = CV$
 $= \frac{29}{9} \times 10^{-6} \times 10$
 $= 32.2 \times 10^{-5} \text{C.}$

- c) - Type of dielectric material
- Overlapping cross sectional area
- Distance between the plates

15. a) That which opposes the flow of electrical current.

b) i) Parallel $\Leftrightarrow \frac{1}{R} = \frac{1}{3} + \frac{1}{4}$
 $= \frac{4 + 3}{12} = \frac{7}{12}$

$$R = \frac{12}{7}$$

$$\begin{aligned} \text{Series } \frac{12}{7} + 2 &= \frac{12 + 14}{7} \\ &= 3.86\Omega \end{aligned}$$

ii) $V = IR$
 $\Leftrightarrow 12 = I \times 3.86$
 $I = \frac{12}{3.86} \text{A}$

iii) Through 4Ω resistor
 $= \frac{3}{7}$ of total

$$= \frac{3}{7} \times \frac{V}{R}$$

$$= \frac{3}{7} \times \frac{12 \times 7}{7} \text{A}$$

$$= 1.38\text{A}$$

$$E = Pt = VIt$$

$$= 12 \times 1.38 \times 2 \times 60\text{J}$$

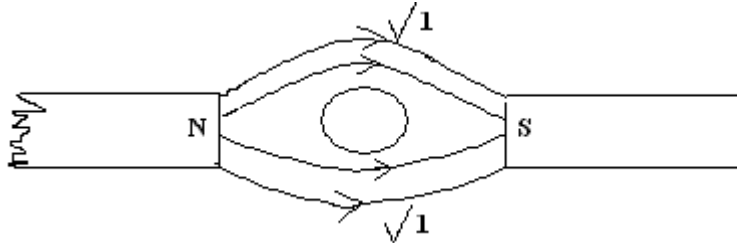
$$= 1987.2\text{J}$$

- d) Radio circuit
Heater coils
Bulb filament

16. a) After rubbing two different material, one losses electrons leaving it with majority protons which are positively charged thus acquires positive charge.
- b) Leaf collapses
- Sharp regions are good charge dischargers leaving the electroscope with no charge.
- c) Burning candles makes the air near it charged thus repelled by the charge on the metal.
- d) When lightening strikes the tree acts like an arrestor and body near it is affected.
- e) - Can cause fire
- A can kill if not arrested
17. a) - Electrical
- Induction
- Storing

b) Because magnetic material are attracted by magnets and even unlike poles of a magnet.

c)



d) i) X - North
Y - South

ii) - Electric bell
- Microphones / speaker

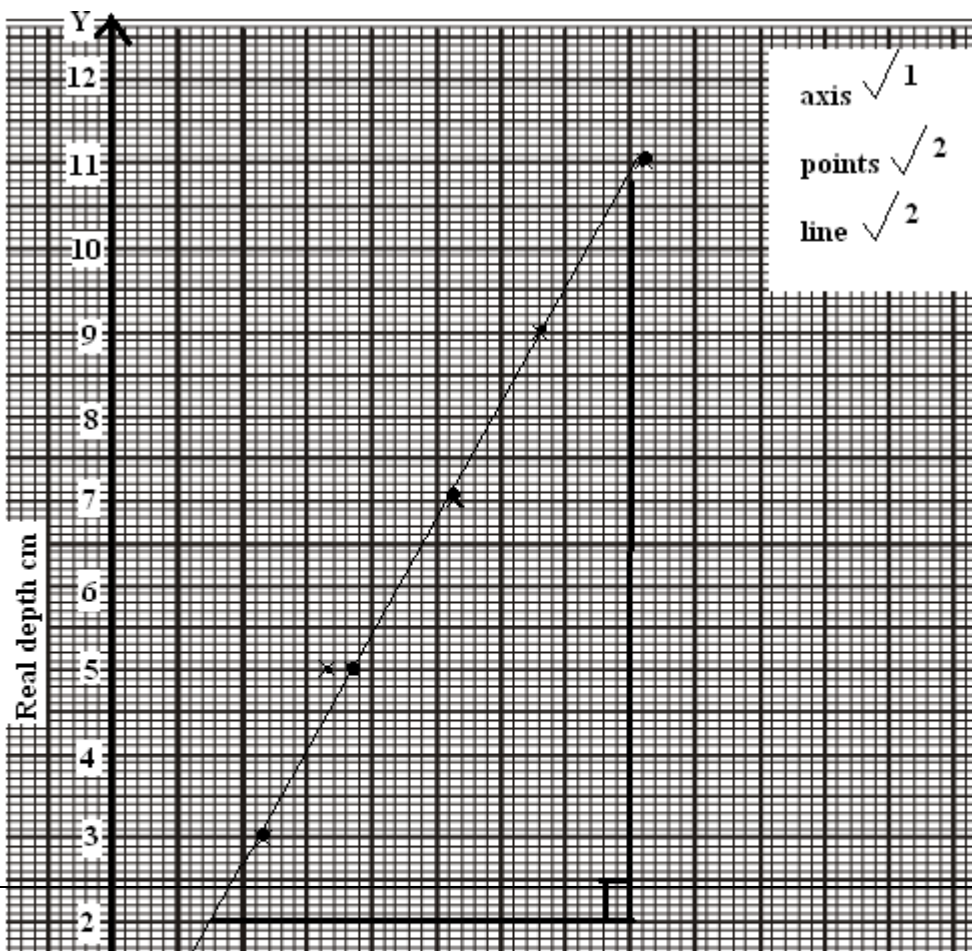
18. a) Light from dense liquid to less dense air is refracted away thus lifting the object.

b) i) From the graph paper

ii) $\frac{\Delta Y}{\Delta X} = \frac{\text{Real depth}}{\text{Apparatus depth}}$

$$= \frac{11 - 2}{8 - 1.5}$$

$$= \frac{9}{6.5} = 1.385 \quad (\text{The gradient of the graph})$$



[DOWN!](#)

