HW

12) a) ~~[illegible]~~

Flint: $\frac{\text{Speed of light in vacuum}}{\text{Speed of light in flint glass}}$

$= \frac{3\times10^{8}\ m/s}{1.86\times10^{8}\ m/s} = 1.61$

=

Crown $= \frac{3\times10^{8}\ m/s}{1.97\times10^{8}\ m/s} = 1.52$

b) Crown and flint: $\frac{1.97\times10^{8}\ m/s}{1.86\times10^{8}\ m/s} = 1.06$

13) a) $\frac{\text{Speed of light in air}}{\text{speed of light in x}} = \frac{3\times10^{8}\ m/s}{2\times10^{8}\ m/s} = 1.5$

b) $\frac{\text{speed of light in air}}{\text{speed of light in Y}} = \frac{3\times10^{8}\ m/s}{2.5\times10^{8}\ m/s} = 1.2$

c) $\frac{\text{speed of light in x}}{\text{speed of light in y}} = \frac{2\times10^{8}\ m/s}{2.5\times10^{8}\ m/s} = 0.8$

14) $\frac{300000}{x} = \frac{6}{5}$

$6x = 300000 \times 5$

$x = \frac{50000}{300000} \times 5$

$x = 250000 \text{ km/s}$

15) $\frac{\text{Speed of light in air}}{\text{speed of light in glass}}$

$= \frac{3 \times 10^8 \text{ m/s}}{x} = 1.5$

$1.5x = 3 \times 10^8 \text{ m/s}$

$x = \frac{2}{3} \times 10^8 \text{ m/s}$

$= 2 \times 10^8 \text{ m/s}$

16) $\frac{\text{Speed of light in air}}{\text{speed of light in water}}$

$\therefore \frac{3 \times 10^8 \text{ m/s}}{2.25 \times 10^8 \text{ m/s}} = 1.33$

17y $\frac{\text{speed of light in air}}{\text{speed of light in diamond}}$

$$\frac{3 \times 10^8 \text{ m/s}}{n} = 2.42$$

$$2.42n = 3 \times 10^8 \text{ m/s}$$

$$n = \frac{3 \times 10^8 \text{ m/s}}{2.42}$$

$$1.24 \times 10^8 \text{ m/s}$$

MCQs

19y dys

20y cy c

21y cy $\frac{4}{6}$

22y cy in medium c

23y ay 2.4

24y dy substance s

25y ay 1.33

26y cy 0.75

27y dy Carbon disulphide

28y dy 1.125