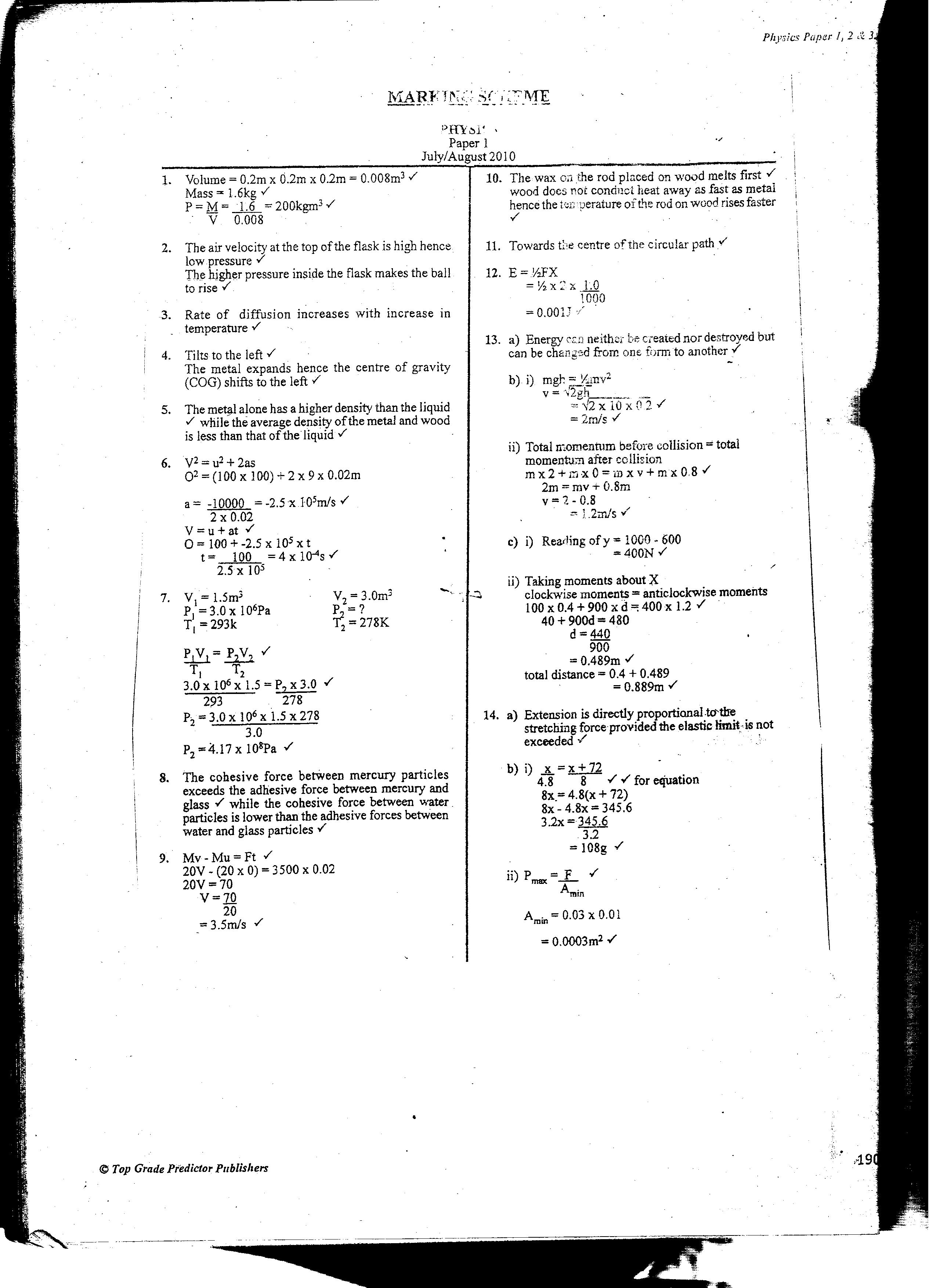
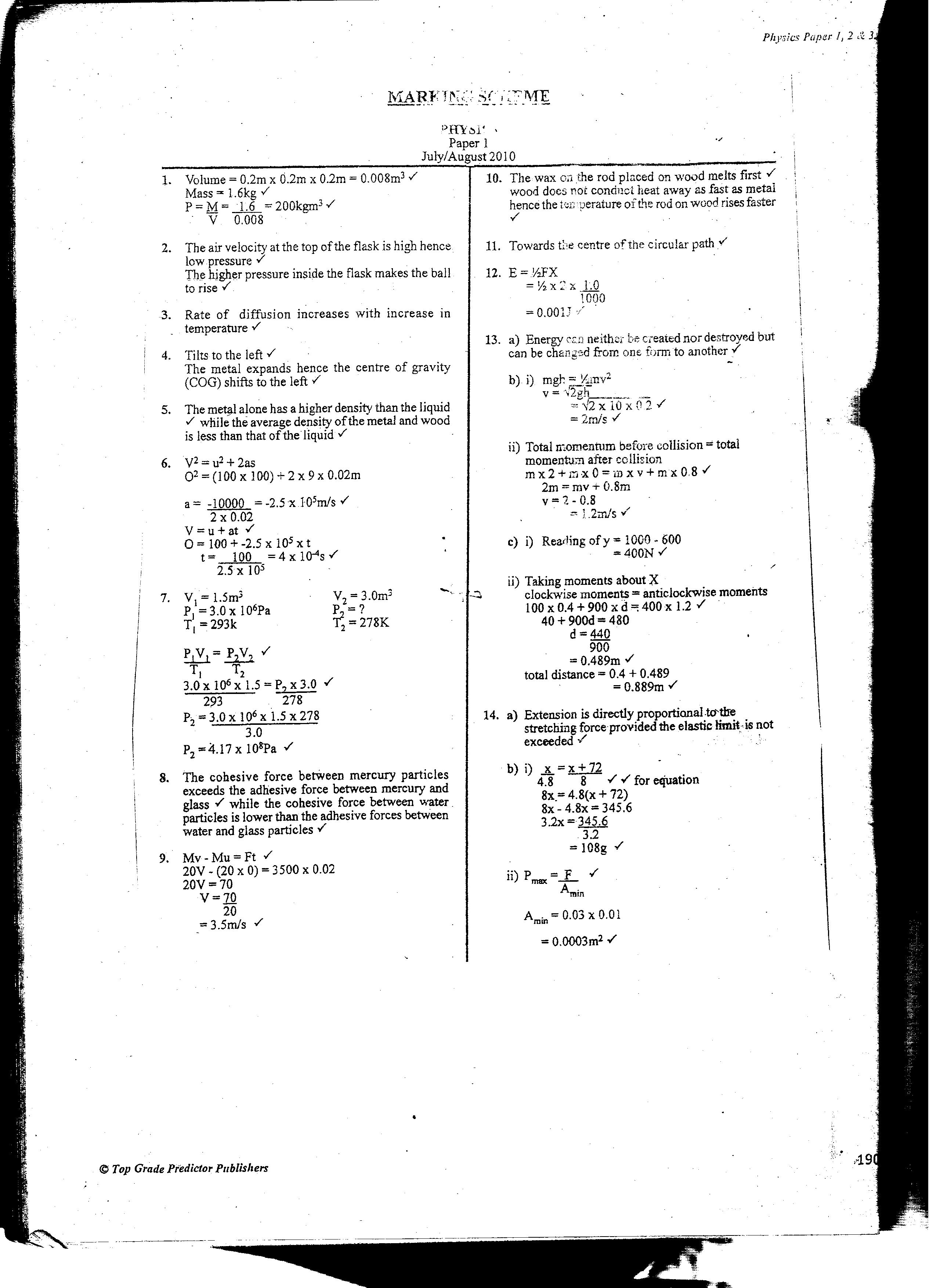
**PHYSICS FORM THREE PP2 MARKING SCHEME**



1. a) Velocity is the rate of change of motion in a specificed direction

b) i) a = slope of graph

= 30m s-1 (1mk)

30 x60s

= 0.016m s-2 (1mk)

between C and D

a= -30m s-1 (1mk)

10 x60s

= 0.05m s-2 (1mk)

ii) Distance = area under graph

=30ms-1 x ( 100 + 60) x 60s

2

= 144 000m.

iii) Vav = total distance

total time

= 144 000m (1mk)

100 x 60s

= 24ms-1 (1mk)

c) S = ½ gt2 (1mk)

1.8m = ½ x 10m s-1 x t2

t2 = 0.36s2

t = 0.6s (1mk)

s = vt (1mk)

= 15m s-1 x 0.6s =9m (1mk)

1. a) Momentum before collision = momentum after collision (1mk)

M1U1 +M2 (-U2) = (M1 + M2) V

(2000 x 5)2 +5000 x (-7) = 7000V (1mk)

V = -25000

7000

= -3.571 ms-1 √1 (1mk)

b) Ft = M(V-U)

f = m(V –U) (1mk)

t

F = 5000 ( -3.571 – (-7) (1mk)

0.1

F = 171,450 N (1mk)

c) initial K.E = ½ M1U12 + ½ M2 (-U2)2

= ½ x 2000 X 52 + ½ x 5000 x (-7)2

= 25,000 + 122, 500

= 147,500J (1mk)

final K.E + ½ (M1 +M2) V2

= ½ (2000 + 5000) (-3.571)2

= 44,632 J (1mk)

Change in K.E = K.E lost – final K.E – Initial K.E

= (44,632- 147,500) J

= - 102,868J (1mk)

d) The change /lost K.E is converted into heat, sound, light and spent in deformation (1mk)

1. a) Particles of the transmitting medium vibrate in the direction of the wave for a longitudinal wave, but at right angles for a transverse wave.

b i) –wavelength = 4cm (1mk)

-Amplitude = 2cm (1mk)

ii) O to A = 9cm containing 2 ¼ waves

Time = 0.045 (1mk)

2 ¼

f =

= 1

0.04s **/** 2 ¼

f = 56.25Hz. (1mk)

v = f^ (1mk)

= 56.25 x 0.04

=2.25ms-1 (1mk)

c) i) s = 2d

t

= 2 x 400

2.5

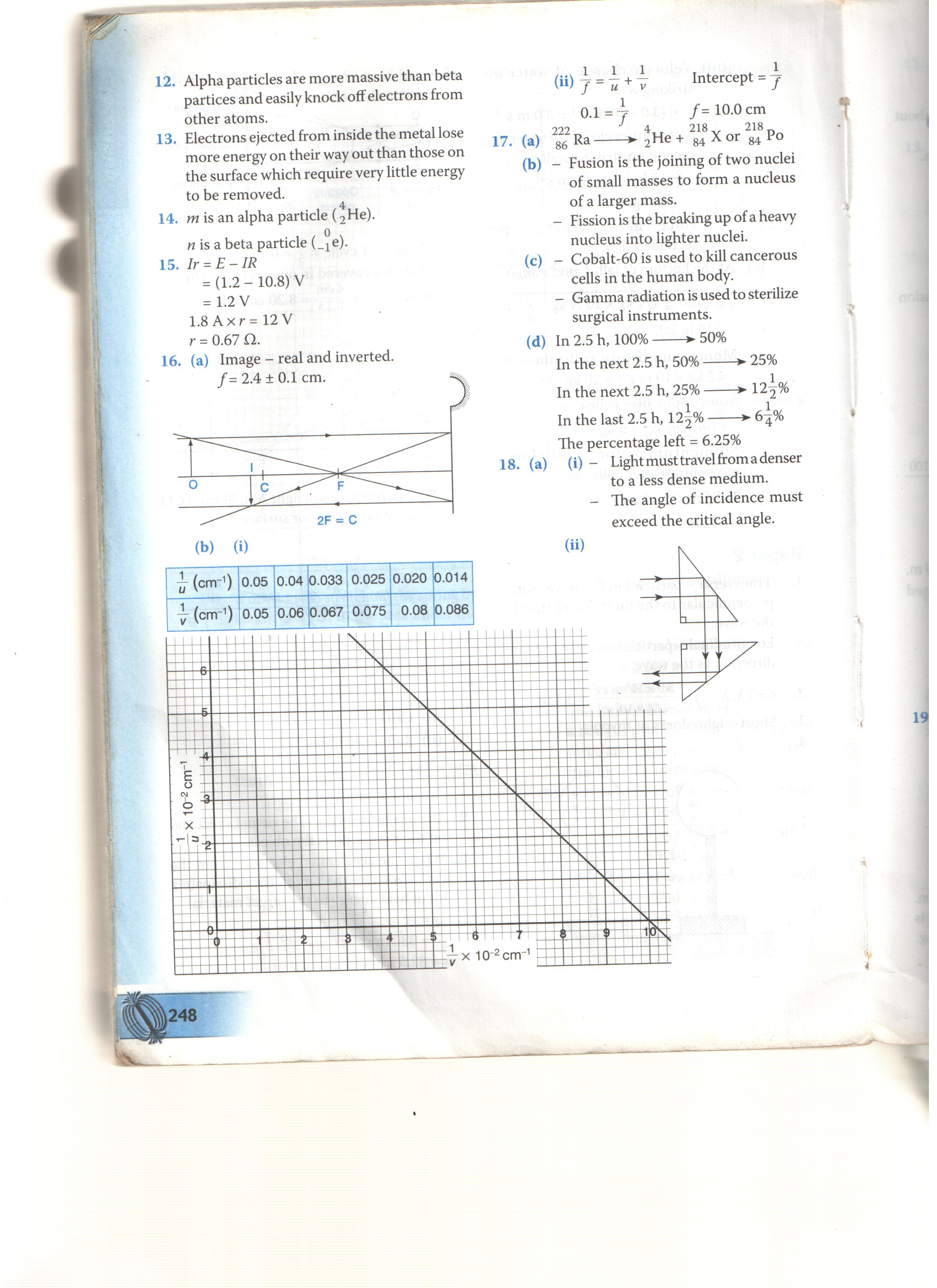
= 320m s-1

ii) 2(x - 400) = (2.5 +2)s (1mk)

x = 1120m (1mk)

1. a) image – real and inverted

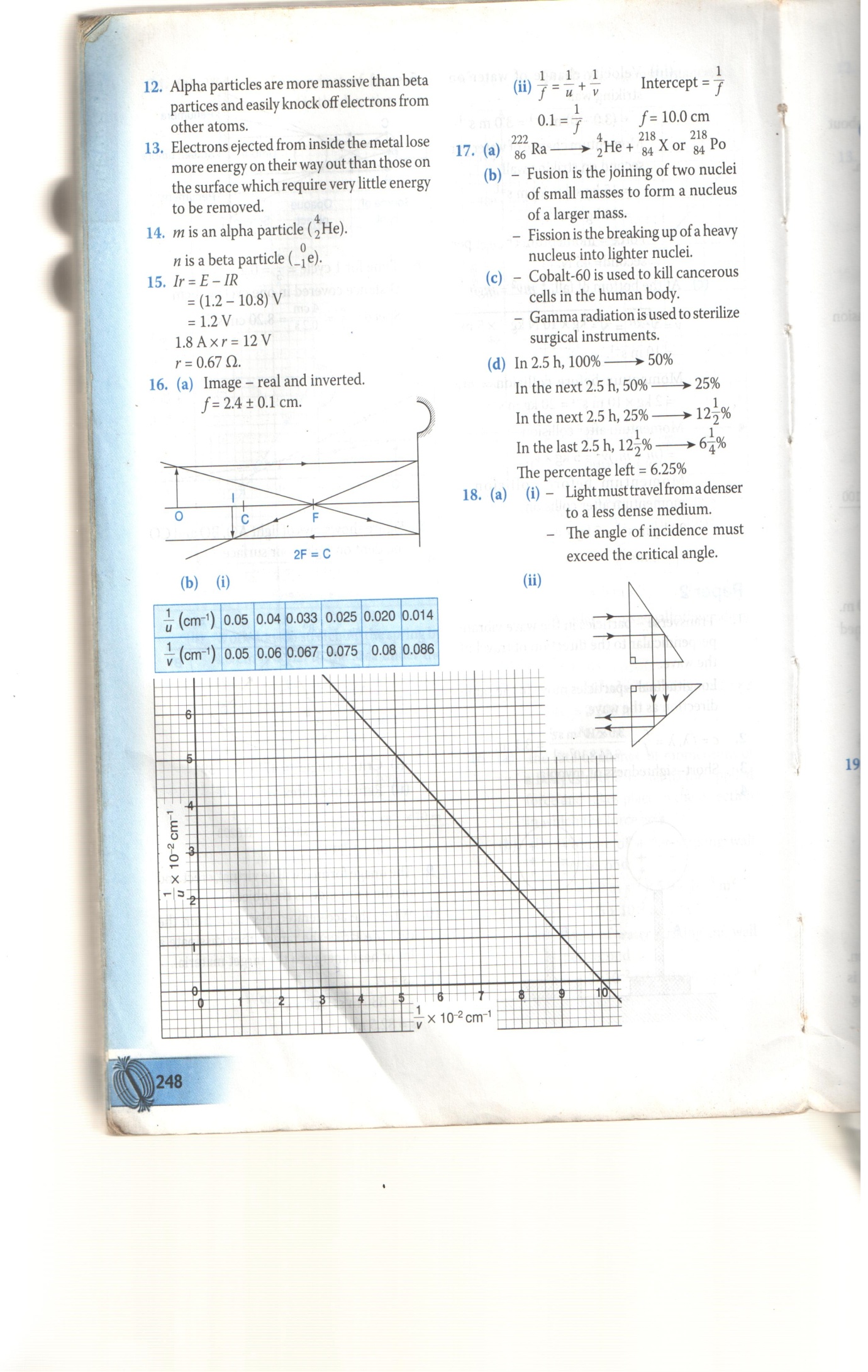
f = 2.4 ± 0.1cm.



* 2rays with arrows (2mks)
* inverted image (1mk)

bi)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| (cm-1) | 0.05 | 0.04 | 0.033 | 0.025 | 0.020 | 0.014 |
| (cm-1) | 0.05 | 0.06 | 0.067 | 0.075 | 0.08 | 0.086 |



A – 1mk

S – 1mk

P – 2mk

L- 1mk

ii) = + intercept = (1mk)

0.1 = (1mk)

f = 10cm (1mk)

1. i) 0.04M (1mk) correct reading

(1mk) correct units

ii) 2cm (1mk)

iii) F = (1mk)

(1mk)

= 100HZ (1mk)