

# Chapter 1

(1) Convert

a) 10 km  $\rightarrow$  mm

b) 10 m<sup>2</sup>  $\rightarrow$  cm<sup>2</sup>

c) 12.3 m<sup>2</sup>  $\rightarrow$  km<sup>2</sup>

d) 12.53 m<sup>2</sup>  $\rightarrow$  km<sup>2</sup>

(2) List

no.	stand. not <sup>n</sup>	sig. digits
0.0030		
1.05		
1259		
0.00003		
12.650		

(3) Estimate the volume of your body.

Object	Perimeter	Area	Volume
Circle	2πr	πr <sup>2</sup>	—
Sphere	—	4πr <sup>2</sup>	$\frac{4}{3}\pi r^3$
Cylinder	—	πr <sup>2</sup> h	πr <sup>2</sup> h

## Chapter 2

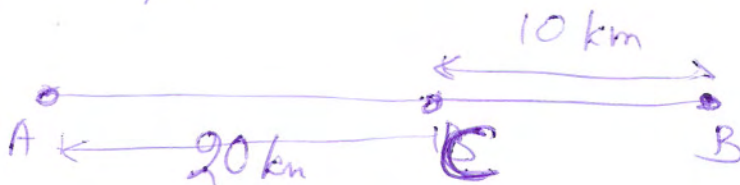
PHYS011 - 053 Questions - Chpts 1-5

- ① A ~~map walker~~ travels <sup>in a straight line</sup> 10 km at  $50 \frac{\text{km}}{\text{h}}$  and stops, remains there for 20 minutes and return to where ~~to~~ it started at  $80 \frac{\text{km}}{\text{h}}$ .

(i) What is the average speed for the entire journey?

(ii) What is the average velocity for the entire journey?

- 2) A car travels from 'A' to 'B' at  $50 \text{ km/hr}$  and then comes to 'C' at  $30 \text{ km/h}$ .



(i) What is the average ~~speed~~ speed for the entire journey?

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(ii)  $1.5 \text{ h}$  is the average velocity

③ A small boy throws a small piece of food from the ground vertically upward. If a bird flying at a height of 30m above, catches the food in its beak after 2.4 (s)

(i) Find the initial velocity of the piece of food?

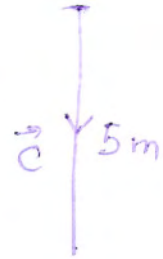
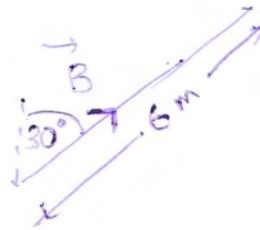
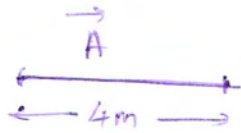
(ii) ~~Did~~ Is the piece of food on its way down or up when it catches it? Prove your answer.

(iii) What is the maximum height the piece of food reaches?

# Chapter 3

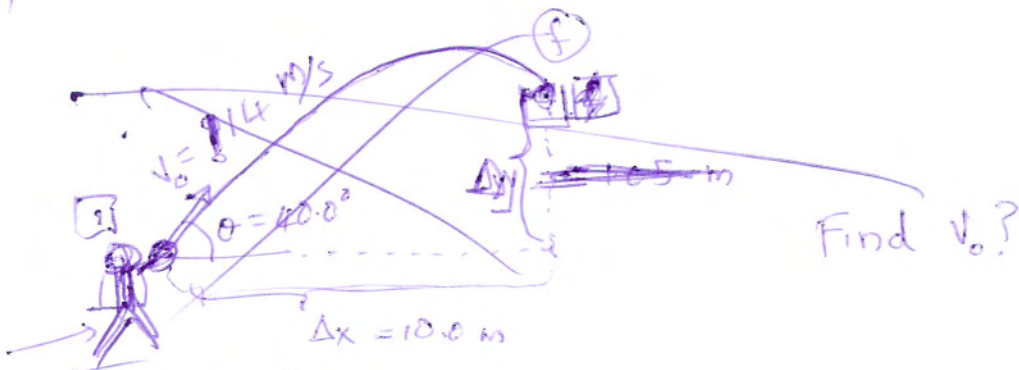
PHYS011 - 053 Questions - Chpts 1-5

1)



1) Find  $\vec{A} + \vec{B} + \vec{C}$  Using component mtd. of vector addition. You should find the 'magnitude' & 'angle' of the resultant vector.

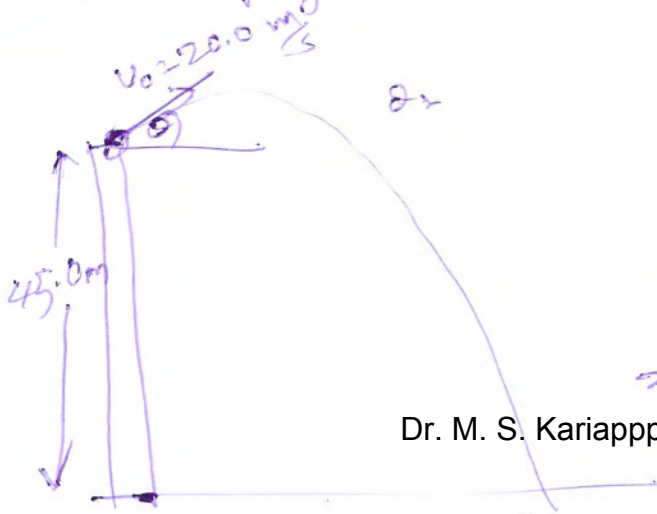
2)



Find  $v_0$ ?

~~Basket ball player~~

2)



1) find the time it takes to hit the ground

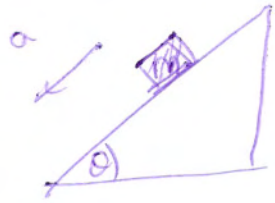
2) find  $\Delta x$ ?

# Chapter 4

PHYS011 - 053 Questions - Chpts 1-5

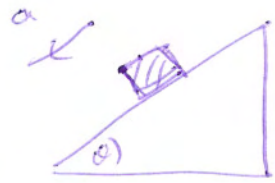
~~Ex 4.15~~

(1)



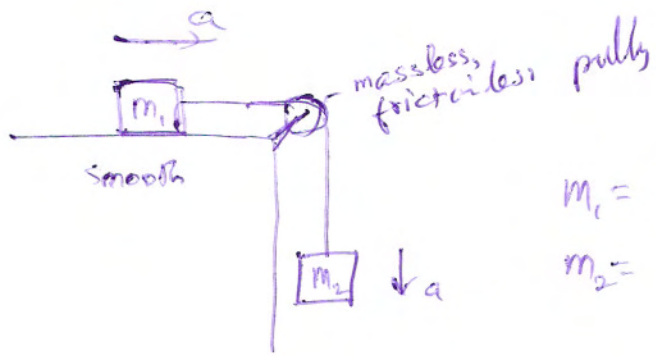
$m = 10.0 \text{ kg}$   
 smooth incline  
 $\theta = 30^\circ$   
 find  $a$ ?

(2)



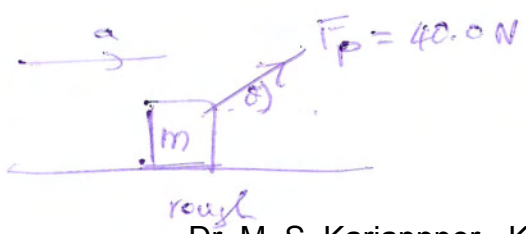
$m = 10.0 \text{ kg}$   
 $\mu_k = 0.10$   
 $\theta = 30^\circ$   
 find ?

(3)



$m_1 = 3.0 \text{ kg}$   
 $m_2 = 2.0 \text{ kg}$

4)



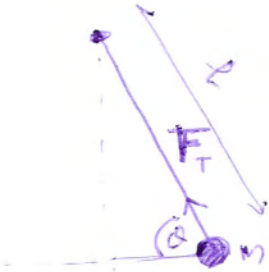
$\theta = 37^\circ$   
 $\mu_k = 0.30$   
 $m = 10.0 \text{ kg}$

find  $a$ ?

# Chapter 5

PHYS011 - 053 Questions - Chpts 1-5

1)



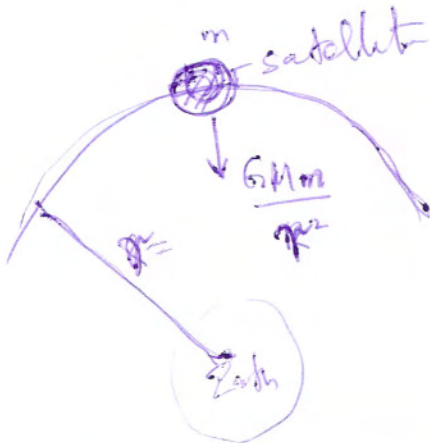
$$l = 1.6 \text{ m}$$

$$\theta = 60^\circ$$

$$m = 120 \text{ (g)}$$

If the ball moves in a circular horizontal path with  $\theta = 60^\circ$  and has a const. speed of 20 m/s. Find the tension in the cord.

2)



$$r = 4.23 \times 10^7 \text{ m}$$

$$G = 6.67 \times 10^{-11} \frac{\text{N m}^2}{\text{kg}}$$

$$M_e = 5.98 \times 10^{24} \text{ kg}$$

(i) Find the speed of the satellite

(ii) Use  $v = \frac{2\pi r}{T}$  to find the period (in hrs) of the satellite