Week of september23

Exercise

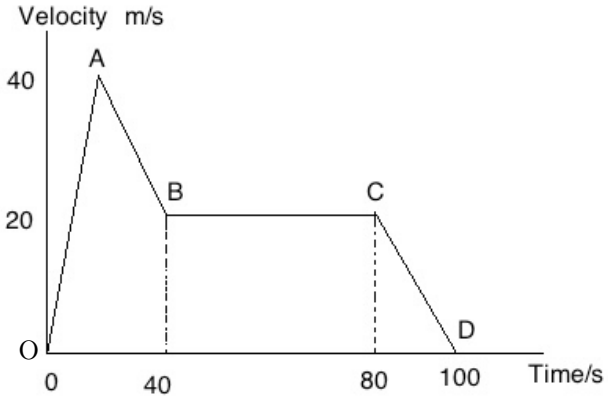
Physics IB_1

Subjet: *Kinematics*

Name : _____

Problem 1

The graph on the right shows
the velocity versus time of a bus
moving along a straight road
over a period of 100 seconds.



Find:

i) The *acceleration* during
the first 20 seconds (O to A).

ii) The *distance* moved
during the 40 first seconds (O to B).

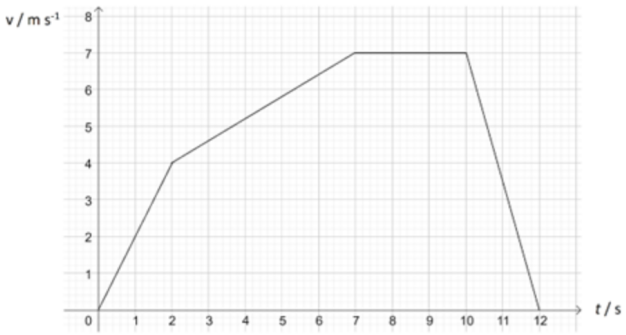
iii) The *average speed* of the bus.

Problem 2

A stone is dropped down a well
and a splash is heard 2.4 s later.
During the fall, the stone has a constant acceleration.
The magnitude of this acceleration as about $10\frac{m}{m^2}$
How far is it from the top of the well
to the surface of the water?

Problem 3 (Answer by A,B,C or D)

The graph shows the variation with time t of the velocity v of a car traveling along a straight and level road.



What time does it take for the car to travel a distance of $31.5\,m$ from $t = 0$?

A. $2\,s$

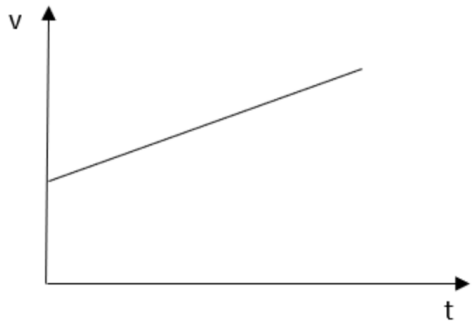
B. $7\,s$

C. $10\,s$

D. $12\,s$

Problem 4 (Answer by A,B,C or D)

The graph shows the variation of velocity v with time t of a car.



Assuming there were numerical values on the axes, which of the following could be deduced from the graph?

I. Displacement
II. Acceleration
III. Change in velocity

A. I only

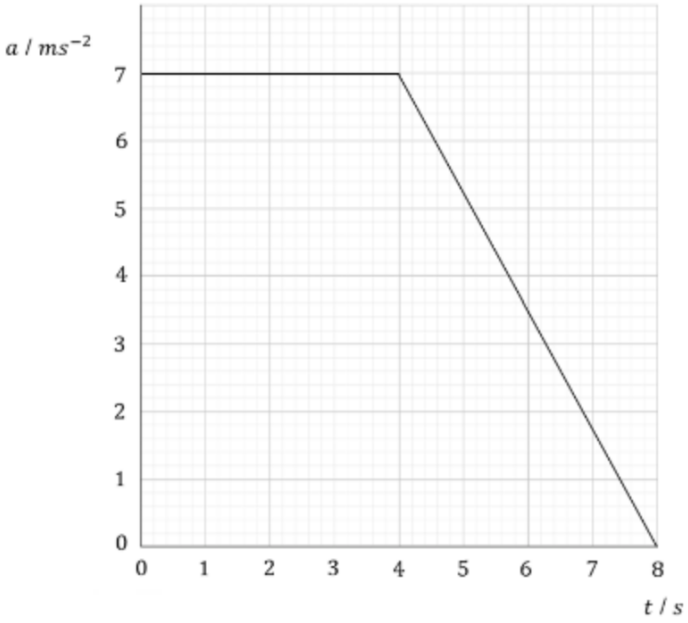
B. II only

C. I and II only

D. I, II and III

Problem 5 (Answer by A,B,C or D)

The graph below shows how the acceleration of an object a varies with time t.



What is the change in speed of the object?

A. $7.0\,m\,s^{-1}$

B. $28.0\,m\,s^{-1}$

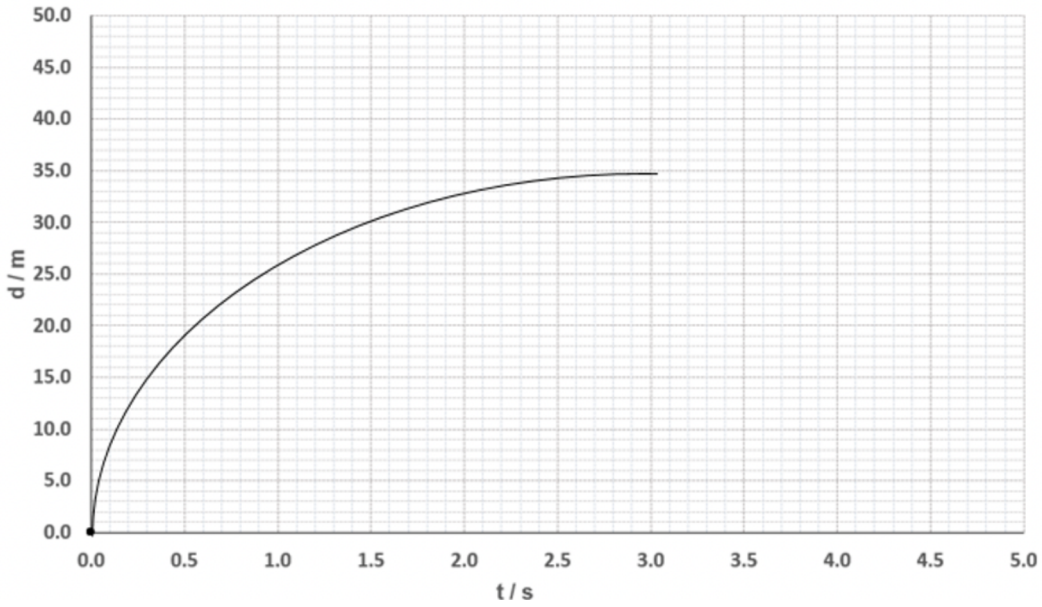
C. $42.0\,m\,s^{-1}$

D. $56.0\,m\,s^{-1}$

Problem 6 (Answer by A,B,C or D)

(a) Define distance. [1]

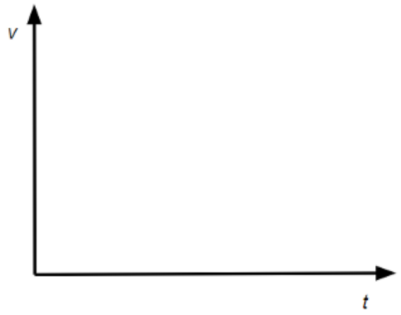
(b) An object moves in a straight line on a level road. The variation of the object's distance d with time t is shown on the graph below.



(i) Describe the motion of the object between $t = 0.5\,s$ and $t = 1.0\,s$. [1]

(ii) Calculate the instantaneous speed of the object at $t = 0.5\,s$. [2]

(iii) On the axes below, sketch a possible graph of the variation of velocity v of the object with time t. There is no need to add values to the axes. [2]



(iv) Determine the direction of the change in momentum of the object during the motion. [2]