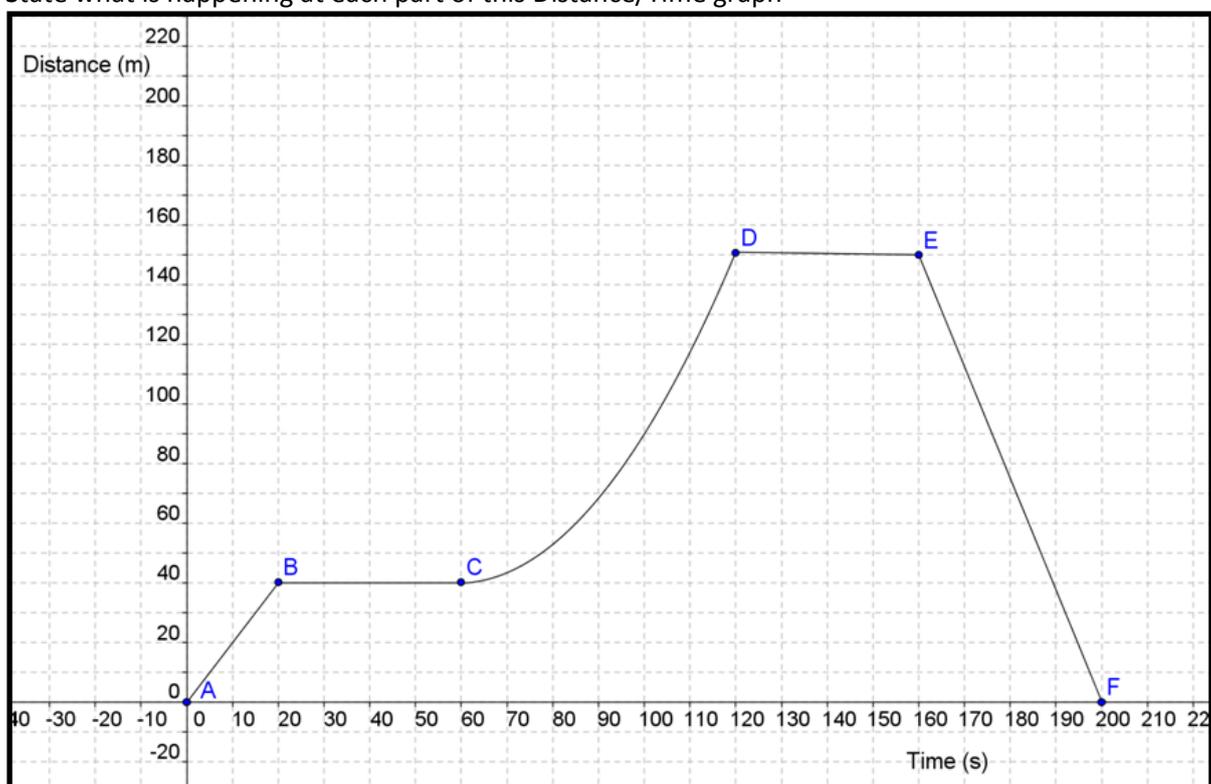


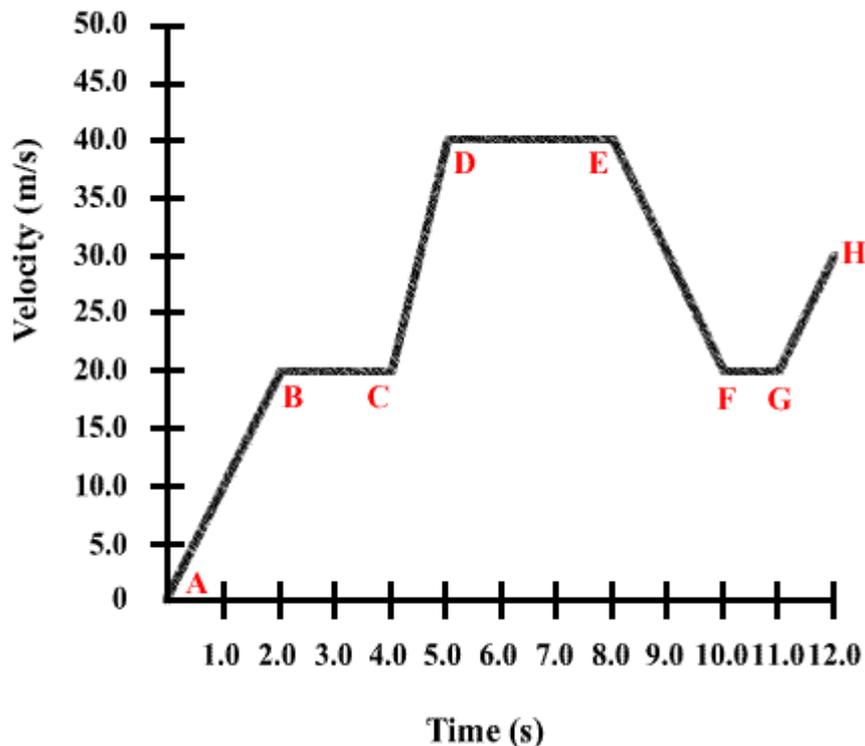
## P2 Knowledge Test – Higher Tier

1. Describe how an insulator become charged?
2. What would happen if two positively charged objects were brought next to each other?
3. Describe (in terms of electrons and charges) what happens when a charged balloon is brought close to a wall.
4. Describe why is a comb is able to pick up small pieces of paper.
5. Describe how lightning is formed.
6. Why do you sometimes get an electric shock when you touch everyday items
7. Explain the purpose of Earthing an appliance?
8. Give two uses of electrostatic charges in everyday life
9. Explain why static electricity is a potential danger when refuelling aircraft?
10. Define an 'electric current' and state what this is in metals.
11. What type of charge to cells and batteries provide?
12. How should you put an ammeter into a circuit and what does it measure? Give the units
13. What will happen to the current if the potential difference is increased?
14. How should you put a voltmeter into a circuit and what does it measure? Give the units
15. Define potential difference
16. Explain the effect of increasing resistance on current.
17. What p.d. is needed to make a 2A current flow through a 10ohm resistor?
18. What happens to the resistance of a filament amp after it is turned on? How does this affect current?
19. What happens to the resistance of a LDR as light intensity increases? What effect does this have on current?
20. Explain what happens to a resistor as current passes through it?
21. Give a use of the heating effect of a wire.
22. What is a vector quantity? Give 4 examples.
23. State what is happening at each part of this Distance/Time graph



24. What is the speed between points a and b

25. State what is happening at each part of this Velocity/Time graph

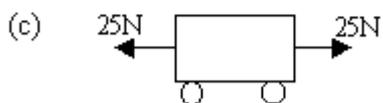
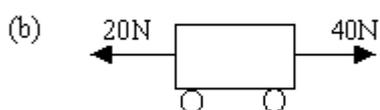
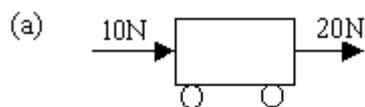


26. When is the object travelling fastest?

27. How far does the car travel between points d and e?

28. Work out the resultant force in each of these examples

Applied forces



29. When two bodies interact, what can you say about the magnitude and direction of the action and reaction force?

30. What will happen to an objects motion if the resultant force is zero?

31. What will happen to an objects motion if the resultant force is not zero?

32. State the two factors that will affect the acceleration of an object.

33. How do all bodies fall in a vacuum?

34. Describe the three phases of what happens to the air resistance on an object as it falls to Earth.

35. What two factors make up the overall stopping distance of a car?

36. State three factors that will affect the stopping distance of a car.

37. What does conservation of momentum mean?
38. Explain how all of the following safety features act to reduce injury: air bag, crumple zone, seatbelt.
39. Define power
40. What is one Watt equal to?
41. Explain what this symbol for Carbon tells us  $^{14}_6\text{C}$
42. How is a positive ion formed?
43. State what an alpha and a beta particle are made up of.
44. Which type of radiation is: most ionising? Most penetrating?
45. What is produced during the fission of Uranium 235?
46. Describe what is meant by a 'controlled nuclear chain reaction'.
47. Explain the difference between nuclear fission and nuclear fusion.
48. State the function of control rods and moderators in a nuclear reactor core.
49. Describe the process whereby the energy from a nuclear reactor core is converted into electrical energy in 5 steps.
50. What problem is associated with the products of nuclear fission?
51. Define Nuclear fusion
52. By what process do stars obtain their energy?
53. Why does nuclear fusion only happen at high temperatures and pressures?
54. Why is nuclear fusion often cost prohibitive?
55. What are the 2 main dangers of ionising radiation?
56. Thorium and radium used to be put in face creams back in the 1900's. Why is this no longer done?
57. How can nuclear waste be disposed of and stored in the long term?
58. What is the main advantage of nuclear power over fossil fuelled power stations?
59. What is the disadvantage of storing nuclear waste: in space? In sea?
60. Sketch a radioactive decay graph
61. What is the unit for the activity of a radioactive isotope?
62. What do we mean by an isotopes 'half life'?
63. What is meant by background radiation and where does it originate?
64. How is radiation used to gauge the thickness of paper?
65. How is radiation used in smoke alarms?