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Q1)

a) the 3 mechanisms set out by the Kyoto protocol

- Clean development mechanisms
 - Joint implementation
 - Emissions trading
- the Clean development mechanism allows a country with an emissions limit to use a project in developing countries to lower emissions, counting towards the targets.
- the joint implementation allows a country to invest in projects in other countries to reduce their emissions, such as replacing coal power plants with more efficient power. This is different because it's used in a country with an emissions commitment.
- Emissions trading is where a country struggling to meet targets can buy any spare emissions space from other countries, so if a country is under their limit then this excess can be sold on.

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- ⑥ Carbon offsetting in my opinion has a good and bad point about it.
- It's good because these methods allow more developed countries to help reduce the emissions in less developed countries, reducing the overall emissions around the world. However, this also means the more developed countries don't have to work so hard to continue reducing their own emissions, which would be beneficial to lower the emissions produced.
- these countries would be less likely to invest much time in new efficient technology that the planet needs, but it introduces new technology to less developed countries.

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Q2)

- a) Because vehicles are fitted with recyclable materials, most of these can be removed and reused. However, there are also polluting parts fitted to the vehicles such as batteries and tyres, so these will be removed first before breaking down the vehicles.

These harmful parts will be depolluted properly, such as discharging the battery and reusing rubber from the tyres where possible.

the left over recyclable materials on the vehicle such as the steel or aluminium can be melted down to reuse, or if it's in a good condition it can be fitted to a different vehicle needing the part.

this end of life is used to reduce waste coming from vehicles, also encouraging manufacturers to use more materials that are recyclable. on top of making the vehicle easier to break down at the end of life stage to further reduce waste.

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- (b) the 5 levels of autonomous driving ranges from a 1, where there is no steering help to drive the vehicle, but features Cruise Control for example, up to a 5, where the vehicle is fully autonomous and doesn't have a driver.

level 1 can be the safest because a person can often see more possible dangers than an autonomous vehicle. for example, the driver could see a person walking towards the road and prepare to stop, whereas the autonomous vehicle would see the person once they are in the road, possibly causing an accident.

However, in the darker environment such as night or a dimly lit area, an autonomous vehicle can use sensors to see objects in the dark and reduce the risk of an accident.

there are developments being made to a fully autonomous race car, in the attempt to create a race that is safer than other races by removing the drivers. these cars will apparently communicate with each other to know the changes in speed and turning to lower the chance of a collision.

But this may remove the excitement from the racing if there's not much of a competition.

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Q3)

a) To reduce noise being produced by the race tracks there have been different methods used by the track. these include

- * Limitations to the track operating times and days, this reduces the noise created during certain times where the locals would be more likely to complain.
- * Using elevated areas where the track would produce the most noise, this includes raising the spectator areas to stop the sound escaping, or surrounding parts of the track with raised ground to prevent the sound from travelling or echoing to the area. Some race tracks may also use methods such as beams at the sides of the track to direct the noise upwards and away from the surrounding towns.

In some cases, the track will be modified to move the sections to be further away from the surrounding areas to lower the noise that reaches the area. This has introduced many different layouts to tracks known for producing a lot of noise.

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- b) The introduction of formula E and hybrid powered racing has helped the industry to lower the impact to the environment by reducing the emissions being produced.
- These have also introduced new technologies into the industry that can be developed for use in other race series and used in road cars.
- This technology can hopefully work to reduce the emissions produced by the road cars contributing the most carbon to the atmosphere.
- The formula E technology can also be used to improve the systems used for electric road vehicles too, especially used in buses or delivery vehicles.
- With the introduction of the formula E series, there has been a significant improvement to the technology used in the electric vehicles, and this technology should continue to improve ready for the petrol and diesel sale ban in 2035. This means that the electric vehicle technology will be improved and become more beneficial for drivers, using technology to increase range such as KERS (kinetic energy recovery system) where it stores some power under braking to use later.
- This will improve the public perception of the automotive and motorsport industry if the noise and pollution can be lowered to benefit the environment.