

Gases from Air: Answers

1. (a) -10 [1]
- (b) -105 [1]
- (c) -200 [1]
- (d) Nitrogen, argon, oxygen
- (e) The mass of 1 mole (formula mass) of oxygen = 32 g [1]
- $32 \div 24 \text{ g/dm}^3 = 1.33 \text{ g/dm}^3$ [1]
2. (a) They would solidify and block pipes [1]
- (b) Oxygen has many more uses [1]
- One fifth of the air only is oxygen [1]
- (c) (i) Density = mass/volume [1]
- Volume = $28 \div 0.88$ [1]
- = 31.8 cm^3 [1]
- (ii) Much more transported in same space/particles much closer together. [1]
3. Raw material for fractional distillation of liquid air is everywhere.
Crude oil has to be imported to a deep water port.
Many industries want small quantities of oxygen or nitrogen.
Industries want large quantities of crude oil products.
Fractional distillation of liquid air does not produce pollution products.
So it can be sited anywhere or close to residential areas.
Fractional distillation of oil can produce air pollution products/fire hazards.
So it can be sited away from residential properties.
Mark any eight of the above points or alternatives. [8]