

1. What is the main purpose of a '**reformer**' in petroleum refining?
  - a) Decrease percentage of branched chain hydrocarbons
  - b) Shorten long chain hydrocarbons to C6-C10 chain length
  - c) Convert saturated hydrocarbons to alkenes
  - d) Increase the percentage of branched chain hydrocarbons
  - e) Hydrogenate aromatics to saturated hydrocarbons
  
2. The most common gasoline **anti-knock agent** until about 1975 was:
  - a)  $\text{Pb}(\text{CH}_2\text{CH}_3)_4$
  - b) ethanol
  - c) methanol
  - d) benzene
  - e) manganese
  
3. **Syn gas** is a major starting material for many industrial processes; what is it comprised of?
  - a)  $\text{H}_2$
  - b)  $\text{CO} + \text{H}_2$
  - c)  $\text{CO}$
  - d)  $\text{H}_2\text{O} + \text{H}_2$
  - e)  $\text{H}_2 + \text{CO}_2$
  
4. Which of the following statements about **hydraulic fracturing (fracking)** is **true**?
  - a) Uses mostly water as the fluid
  - b) Can trigger seismic activity
  - c) Fracture zone is far below ground water levels
  - d) Main non-water component in 'fracking fluid' is sand or ceramic powder
  - e) All of the above