

Lecture 11 – Economic Resources

1. What are the three main (largest) metallic commodities produced by Canadian mines?
2. What is the common element of the 5 ways in which ore minerals are precipitated?
3. What happens when an ore-bearing fluid moves from an area of high temperature to an area of lower temperature?
4. Of the different rock types, which one(s) is(are) associated with metallic mineral deposits?
5. From previous lectures: What is the difference between the origin of coal and oil/gas?
6. Laterite deposits concentrate certain elements (such as aluminum) by:
 - a) dissolving them near the surface and reprecipitating them at the water table
 - b) gravitational settling of heavier elements in magmatic bodies
 - c) mechanically separating the aluminum from other elements in streams
 - d) leaching out other elements through deep weathering of the parent rock
 - e) hydrothermally transporting and reprecipitating them in a new area
7. Porphyry deposits are associated with what setting?
 - a) the root zones of volcanoes
 - b) sinuous mountain streams
 - c) rifting margins in the seabed
 - d) Archean sedimentary basins
 - e) diatreme pipes through the mantle
8. How are placer deposits of heavy metals formed?
 - a) heavy metals sink to the base of igneous intrusions and are concentrated
 - b) heavy metals are transported by hydrothermal fluids and precipitated
 - c) heavy metals are mechanically transported and concentrated by rivers
 - d) heavy metals invade fractures and form vein deposits
 - e) heavy metals are concentrated by metamorphism of country rock
9. Volcanogenic massive sulphide (VMS) deposits form:
 - a) at the contact between an igneous intrusion and the country rock
 - b) on the edges of streams and on stream beds
 - c) in continental sedimentary basins
 - d) in tropical areas from deep weathering of parent rock
 - e) from hydrothermal vents on the seafloor

10. Where are diamonds found?
- a) at the edge of lithospheric plates
 - b) under cold and old lithosphere
 - c) in the root zones of volcanoes
 - d) above subduction zones
 - e) in Africa and northern Canada