

**Q. 1) Answer the following: (20 marks)**

1. Traditional surface mining methods fall into two broad categories based on the location; they are  
1. .... and 2. ....
2. .... is type of placer-aqueous extraction mining.  
a- Glory Holing                      b- Heap Leaching                      c- Panning
3. .... is a method used in horizontal or near-horizontal ore bodies; where gravity is not usable to move the ore around. a- *Overhand stoping*    b- *Breast stoping*    c- *Underhand stoping*
4. .... is a very low-cost, high-productivity method of mining.  
a- Strip mining                      b- Terrace Mining                      c- Open-pit Mining
5. .... applied where the terrain is flat, and commences with a trench made through the overburden to expose a coal seam. a- Quarry mining                      b- Contour stripping                      c- Area stripping
6. Mechanical extraction depends on water or another liquid such as sulfuric acid to extract the mineral.  
a-  $\checkmark$     b- X
7. There are two types of placer mining:- 1- ..... & 2- .....
8. .... is proven and tested technology for the mining of deep salt deposits.  
a- Hydraulic Mining                      b- Solution mining                      c- Strip mining
9. Leaching is a chemical process in mining for extracting valuable minerals from ore. a-  $\checkmark$                       b- X
10. .... are extracted from their ores by a cyanide leaching process.  
a- Coals                      b- Metals                      c- Salts
11. To apply ..... leaching, the deposit must be porous enough to enable a good circulation of the leaching solution. a- in-situ                      b- heap                      c- glory
12. The metals contained in ..... can potentially be in situ leaching (ISL) exploited.  
a- sandstones                      b- claystone                      c- anhydrite rock
13. The strip ration in mine will be ....., if waste is 45 kt/day and ore is 90 kt/day.  
a- 2                      b- 0.5                      c- 135 kt/day
14. Gold and silver metals are examples for excavated by Underground.....  
a- evaporate rock mining                      b- soft rock mining                      c- hard rock mining
15. .... it is a multi-benched sideways-moving method of surface mining.  
a- Strip mining                      b- Terrace Mining                      c- Auger mining
16. The percentage of metal recovery using heap leaching can range from.....  
a- 30 to 90%                      b- > 90%                      c- < 30%
17. .... are usually needed for more effective drill and blast control in underground mining.  
a- ramps                      b- levels                      c- sublevels
18. Mining-method techniques are commonly subdivided into: ..... and .....

19. In ..... method, the broken ore is not removed completely from the stope.

- a-cut and fill            b- block caving            c- shrinkage stoping

20. .... is example for steeply dipping ore bodies mining.

- a- Sublevel caving            b- Longwall mining            c- Room-and-Pillar

**Q. 2) What is stoping process in underground mining?. The specific method of stoping depends on a number of considerations; what are these? (10 marks)**

**Q. 3) What are various open-pit and orebody configurations; Give an example with the illustrated figure: (15 marks)**

**Q. 4) What are the major differences between *overhand* and *underhand stoping* in underground mining? (5 marks)**