1. **Question: Discuss the advantages of evaporation**

Answer: Advantages of evaporation are

- The residue (dried oil wastes) can be reused as fodder and fertilizer;
- Only a small area is needed;
- Exhaust steam can be reused as energy;
- Considered state of the art in the food industry

2. **What the principle is the employed in drying?**

The principle of drying, no matter what drying mechanisms are involved, can be generally expressed by the following surface vapour flux equation:

- $N''v = hm \cdot (\rho v,s - \rho v,\infty)$

where $N''v$ is the vapour (or drying) flux (kg m^{-2} s^{-1}); *hm* is the mass transfer coefficient (m s^{-1}); $\rho v,s$ is the interfacial vapour concentration at the moist material surface (kg m^{-3}) and $\rho v,\infty$ is the vapour concentration in the surrounding space that the vapour travels into (kg m^{-3}). *hm* is determined by the flow field around the material being dried (m s^{-1}), which may be viewed as a velocity of mass movement.

3. **Explain the benefits of drying**

Drying creates a new micro-structure as it progresses and the spatial distribution of the micro-structure characteristics, density included is important in texture perception of the product and affects how it may be used as an ingredient for mixing into other foods (for instance, the reconstitution properties for food powders created by spray drying). For instance, microencapsulation is employed to protect the active and beneficial ingredients, such as probiotic bacteria, during drying. Drying is also preferably done at the lowest temperature possible, for the same purpose of achieving higher retention of bioactivity.

4. **What is thermal conversion?**

Thermal conversion of solid waste includes transformation of wastes into gaseous, liquid, and solid conversion products. The process also generates energy due to burning of waste materials, Thermal processing also results in waste volume reduction, Combustion or incineration, pyrolysis, and gasification are the techniques commonly employed for thermal conversions.

5. **What are the benefits of thermal treatment?**

Compared to other disposal thermal treatment has a number of advantages, such as:

- Short time of treatment (in the case of land filling, it may take decades for the waste to decompose);
- Possibility of treating hazardous waste (as for example in the case of animal carcasses contaminated by a dangerous contagious diseases);
- Possibility of off-gas control (abatement of environmental impacts);
- Possibility of utilizing heat released by the oxidation process (waste-to-energy).

6. What is the composition of flue and bottom ash?

Flue and bottom ash is produced with the processing of waste materials and settle at the bottom of the incineration plant. The ash, which is produced, is four to five percent of total weight of the waste processed while the flue ash makes up some ten to twenty percent of total weight of waste material. The heavy metals, which are contained in the flue or bottom ash, are lead, cadmium, zinc and copper. A small amount of furans and dioxins are also produced.