**Question 4b**

Slip casting is one of the exclusive ways for casting ceramics.

**Figure** 1. Here we use a colloidal suspension of silica and because of this colloidal suspension which will be having sufficiently low viscosity which means it will flow easily into the mould cavity. This is nearly same as the process of pouring metal into the mould cavity.

Mould cavity is made up of an absorbent mould material which absorbs the liquid part which is mostly an organic solvent of colloid suspension.

**Figure** 2. Once this liquid portion gets absorbe d, the suspension becomes more and more saturated with the ceramic constituents. We can only use this for ceramics because ceramic particles have low density and one of the primary criteria is, we need to have a colloidal solution. Once solvent particles are absorbed, ceramic particles start to deposit over the mould wall and depending on the concentration of colloid, we can control the thickness of deposition.

**Figure** 3. Once sufficient thickness is attained, the remaining colloidal suspension is poured out and mould is stripped away leaving behind the shaped component.

The shape obtained cannot be used directly because it is fairly brittle and weak as it is just mechanical bonded. So, the final step is taking this fragile shape and put it in a furnace subjecting to sintering and we get well-bonded ceramic particles.

