* By diffusion: At high temp. microstransfers of toal and work and work particles takes place and alloying action takes place. This result in formation of weak bonds in toal microstructure and chip might pullout weakened particles. They may give rise to formation of built up edge. This built up edge will cause fusthes allowing and at high speed it is pulled along with chip due to high friction and alloyed particles are also disloged.

Q.3→ Describe the factor affecting tool life.

Ans → The factors that affect the toal life:

(i) Cutting condition (ii) Tool Geomatry
(iii) Toal material (iv) Work material (v) cutting fluid

The effect of cutting speed and depth of cut is represented in the tool life equation.

$$T\theta^B = C$$

$$T^{\frac{0.5-2x}{1-2x}} = \left[\frac{T_c H^{0.5}}{C_{US} A^x}\right]^{\frac{1}{1-2x}}$$

$$\theta = \frac{C_{US} V^{0.44} A^{0.22}}{K^{0.44} \tau^{0.56}}$$

H = Specific heat x Thermal conductivity

θ = toal temp., A = area of cut, K = thermal conductivity of work, τ = Specific heat of work

$$VT^n f^{n'} d^{n''} = C$$

as any of them increase the toal life decreases. increasing the rake angle decreases the cutting forces heat produces at the toal tip and so increases toal life. Howeves increasing the rake angle to a large value reduces the toal material available at the toal tip for conducting heat generated thus increasing the toal tip temp. This would decrease the toal life.