BEAT UP
FAQ

1) Define sley eccentricity. Mention two advantages of sley eccentricity. What problem will arise if the sley eccentricity value is very high?

2) Why is it necessary to increase eccentricity of sley for weaving wider and heavier fabrics?

3) Derive the expression for the acceleration of sley if the radius of crank is 'r' and length of the connecting rod is 'l'. Prove that for maxima and minima, sley acceleration = $\omega^2 r \left(1 \pm \dfrac{r}{l}\right)$.

4) Derive the expression for the force, torque and power needed to drive a sley if equivalent mass of the sley is M, angular velocity of crank shaft is ω, crank radius is r and length of connecting arm is l.

5) Why the bumping occurs while weaving fabric with very high pick density? How the problem of bumping can be minimized?

6) Explain the tension variation in the warp sheet during the weaving cycle. Prove that the weaving resistance is independent on warp tension.

7) Draw the velocity and acceleration curve against the angular position of the crank shaft for a sley having eccentricity of 0.3. Mark the important angular positions and corresponding values of velocity and acceleration.

8) If the ratio of absolute values of sley acceleration at the front center and back center of the loom is 5/3, then determine the value of sley eccentricity?

9) The radius of crank and length of connecting rod of a sley is 3 unit and 10 unit respectively. The shuttle can pass through the shed when the displacement of the sley is at least 60% of the maximum displacement. Calculate the total time (second) available for shuttle to travel through the shed. The loom speed is 200 picks per minute.

10) The tensile modulus of a woven fabric and corresponding warp sheet is 20 N per cm width and 30 N per cm width, respectively. If the cloth fell displacement is 5 mm during beat up and the free length of fabric and warp is 50 cm and 100 cm respectively, then calculate the weaving resistance. Fabric width is 150 cm. Determine the minimum basic warp tension to prevent bumping.