

# *Production Engineering Department*

## *Assignment-2*

### *Tool engineering*

1. The following observations were made during orthogonal turning of a mild steel tubing of 60 mm diameter on a lathe.
  - (1) Cutting speed .....24 m/min
  - (2) Tool rake angle .....32°
  - (3) Feed rate .....0.12 mm/rev
  - (4) Tangential cutting force.....3000N
  - (5) Feed force.....1200N
  - (6) Length of continuous chip in one revolution...96 mmDetermine:
  - (i) Co-efficient of friction
  - (ii) Shear plane angle
  - (iii) Velocity of chip tool face
  - (iv) Chip thickness
2. Distinguish between a Jig and Fixture. Sketch different drill bushes useful in drill jigs.
3. Draw and discuss following clamping devices
  - (i) Hinged Clamp
  - (ii) Quick Action Nut
  - (iii) Hydraulic Clamp
4. What are chip breakers? Explain them briefly. If they are not used what adverse effects chip can produce on the work, tool and surroundings?
5. Explain methods of temperature measurement at tool-work interface.
6. Explain in brief Angle jig.
7. Explain in brief hydraulic clamp
8. Derive various force equations can be derived using Merchant Circle diagram.
9. Explain significance of center of pressure in design of press tools. How it is calculated?
10. Explain significance of center of pressure in design of press tools. How it is calculated?

**Note: Assignment-2 to be submitted on or before Dt. 10/10/2019**