

- N.B.** (1) All questions carry equal marks.
(2) Question No. 1 is Compulsory.
(3) Attempt any three questions from remaining five questions.
(4) Figures to the right indicate full marks.
(5) Draw neat sketches wherever necessary.

- Que. 1 Attempt any four of the following: (20)
- A. Explain the difference between orthogonal and oblique cutting.
 - B. Explain crater wear and flank wear.
 - C. Sketch and discuss a typical internal broach.
 - D. Explain Strain gauge type dynamometer.
 - E. Explain MRS and ORS.
 - F. Write short note on: Polycrystalline diamond (PCD).
- Que. 2. A. Explain the procedure to draw Merchant force circle with some advantages and limitations. (10)
- B. Compare adhesive and abrasive wear with neat sketches. (10)
- Que. 3. A. Compare CVD and PVD. (10)
- B. State and briefly explain various methods to measure cutting temperature. (10)
- Que. 4. A. Explain design considerations for design of Tap. (10)
- B. Explain the various components of cost of machining a work piece which are included in product cost. (10)
- Que.5. A. Discuss the influence of various tool angles in tool signature on tool design. (10)
- B. Explain the constructional features of tipped tool and flat form tool. (10)
- Que.6. A. Determine the shear plane angle, cutting force component and resultant force on the tool for orthogonal cutting operation of material with yield stress of 250 N/mm². Following are the machining parameters.
Tool rake angle = 20⁰ , Uncut chip thickness = 0.30 mm, Chip width = 3mm Chip thickness ratio = 0.50 & Angle of friction = 42⁰
- B. Enlist the surface finish measurement technique and explain any one in detail. (10)