

**TE/Insem/APR-110**  
**T.E. (Mechanical & Automobile)**  
**MANUFACTURING PROCESS - II**  
**(2015 Pattern) (Semester - II)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Attempt Q. 1 or Q. 2, Q. 3 or Q. 4, Q.5 or Q.6.*
- 2) *Figures to the right indicate full marks.*
- 3) *Use of electronic pocket calculator is allowed.*
- 4) *Assume suitable data, if necessary.*

**Q1) a)** Explain the effect of Positive Rake, Zero Rake and Negative Rake angle while cutting the material. **[6]**

- b) Tool life of 10hrs is obtained when cutting with a single point tool at 63m/min. If Taylor's constant  $C = 257.35$ , What will be the tool life if cutting velocity is increased to its double? **[4]**

OR

**Q2) a)** The following data for orthogonal cutting have been observed. **[6]**  
Turning tool designation ASA system  $10^{\circ}-11^{\circ}-6^{\circ}-8^{\circ}-8^{\circ}-25^{\circ}-0.2\text{mm}$ ,  
Uncut chip thickness = 0.127mm,

Chip thickness = 0.228 mm,

Cutting Force = 567 N,

Thrust force = 227 N.

Determine Shear angle, Friction angle and Shear force.

- b) What are the assumption for drawing the Merchant's circle. **[4]**

**Q3) a)** Name different methods of indexing. Explain simple indexing with any suitable example? **[6]**

**P.T.O.**

- b) In a single pass drilling operation, a through hole of 15mm diameter (D) is to be drilled in steel plate of 30mm thickness. Spindle speed is 500 rpm, feed is 0.3mm/rev. Assume approach to be 0.5 D. Calculate drilling time in seconds. [4]

OR

- Q4)** a) Name different operations to be performed on drilling machine. Also explain Reaming and Tapping operations with neat sketch. [6]

- b) The surface of metal slab of 278 mm length and 80mm width is machined by a face milling cutter of 120mm diameter, having 10 teeth, rotating at 50rpm. The milling feed is 0.1 mm/tooth of the cutter. The over travel of the tool is 5mm. Calculate the machining time. [4]

- Q5)** a) Explain any two super finishing processes with neat sketch. [6]

- b) Explain the need and procedure of dressing the grinding wheel with neat sketch. [4]

OR

- Q6)** a) Explain the meaning of following letters which are used to specify Grinding wheel [6]

**W - A - 10 - L - 13 - V - 17**

- b) Sketch and explain Tool and Cutter grinder. [4]

