

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]**

- 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]

