

Total No. of Questions : 6]

SEAT No. :

P511

[Total No. of Pages : 2

APR - 18/TE/Insem. - 110

T.E. (Mechanical)

MANUFACTURING PROCESS - II

(2015 Pattern) (Semester - II)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Solve Q1 or Q2, Q3 or Q4, Q5 or Q6.
- 2) Figures to the right indicate full marks.
- 3) Use of electronic pocket calculator is allowed.
- 4) Assume suitable data, if necessary.

- Q1)** a) Derive an expression for shear angle with chip thickness ratio. [6]
- b) A seamless tube of 50 mm outside diameter is turned on lathe with cutting speed of 20 m/min. The tool rake angle is 15° and feed rate is 0.2 mm/rev. The length of chip in one revolution measures 80 mm. Calculate :
- i) Chip thickness ratio.
 - ii) Shear plane angle.
 - iii) Shear flow speed.
 - iv) Shear strain. [4]

OR

- Q2)** a) The following equation for tool life is given for turning operation, $V T^{0.13} f^{0.77} d^{0.37} = C$,
A 70 minute tool life was obtained while cutting at $V = 35$ m/min, $f = 0.3$ mm/rev and $d = 2$ mm. Determine the change in tool life if the cutting speed, feed and depth of cut are increased by 20% individually and also taken together. [6]
- b) What is built up edge and how is it formed? What are the conditions that lead to formation of built up edge? [4]

- Q3)** a) Explain the following with neat sketch. [6]
- i) Spot facing.
 - ii) Counter sinking.
 - iii) Trepanning.
- b) Explain Thread milling with neat sketch. [4]

OR

P.T.O.

- Q4)** a) Draw and explain Broach tool geometry. [6]
- b) Calculate the time required for drilling a 18 mm diameter hole in 27 mm thick plate at a speed of 0.55 m/s and feed of 0.10 mm/rev the point angle of the drill is 120° and approach and over travel may be assumed to be 6 mm. [4]

- Q5)** a) Explain mounting of grinding wheels with neat sketch. [6]
- b) Write a short note on buffing. [4]

OR

- Q6)** a) For rough grinding operation determine the machining time required when cutting speed is 30 m/min, diameter of work is 50 mm, depth of cut is 0.03 mm, stock = 0.7 mm for 222 mm long work piece, width face of the wheel is 70 mm. [6]
- b) What do you mean by Loading and Glazing of grinding wheel? [4]

