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, $VT^{0.13} f^{0.77} d^{0.37} = C$,

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 120º 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]**