TE/Insem/APR - 10
T.E. (Mechanical)
MANUFACTURING PROCESS - II
(2012 Pattern) (Semester - II)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

1) *Answer 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) Explain the following with neat sketch. **[6]**

   i) Spot facing

   ii) Counter sinking

   iii) Trepanning

b) Explain Thread milling with neat sketch. **[4]**

OR

Q2) a) Draw and explain Broach tool geometry. **[6]**

b) Calculate the Index Crank movement for 69 divisions by compound indexing methods. **[4]**
Plate No. 01 :- 15, 16, 17, 18, 19, 20
Plate No. 02 :- 21, 23, 27, 29, 31, 33
Plate No. 03 :- 37, 39, 41, 43, 47, 49

Q3) a) Explain mounting of grinding wheels with neat sketch. **[6]**

b) Write a short note on buffing. **[4]**

P.T.O.

Q4) a) Explain in brief lapping process. Also list out Advantages and Limitations.

[6]

b) What do you mean by Loading and Glazing of grinding wheel? **[4]**

Q5) 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 **[4]**

i) Chip thickness ratio

ii) Shear Plane angle

iii) Shear flow speed

iv) Shear strain

OR

Q6) 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]**

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