Code: 17D04106

M.Tech I Semester Regular & Supplementary Examinations January/February 2019
ADVANCED TOOL DESIGN
(CAD/CAM)
(For students admitted in 2017 & 2018 only)

Time: 3 hours   Max. Marks: 60

Answer all the questions
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1   Discuss tool engineering, classification and its objectives.
OR
2   Define surface finish and what are the factors affecting surface finish.

3   In an orthogonal turning operation, the following data have been observed:
     Uncut chip thickness = 0.127 mm
     Width of cut = 6.35 mm
     Cutting speed = 2 m/s
     Rake angle = 10°
     Cutting force = 567 N
     Thrust force = 227 N
     Chip thickness = 0.228 mm.
Determine shear angle, friction angle, shear strength of work piece, friction force, shear force, cutting power. Also find out chip velocity, shear strain and strain rate.
OR
4   With a neat diagram, explain the force analysis in orthogonal cutting.

5   Explain the use of turnover jig with a neat diagram.
OR
6   With neat sketches, explain the different turning fixtures.

7   With a neat sketch, explain the assembly of a die set showing the components and explain the use of various components available in the die set assembly.
OR
8   Calculate the blank length to make the part as shown in the figure. Also determine the bending force required if the ultimate tensile strength of material is 3500 kg/cm^2. The die radius is 8 mm and the bend length is 120 cm.
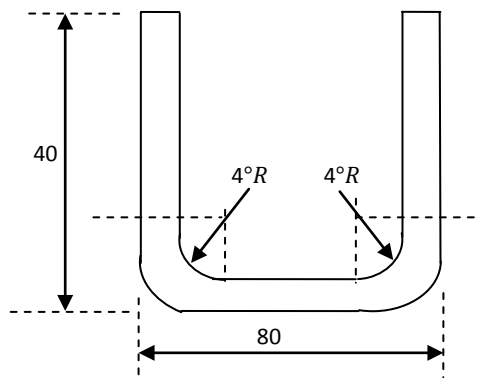
9   Explain the methods of mounting of jobs and cutting tools in machine tools.
OR
10 Discuss about universal fixtures, tool resetting.