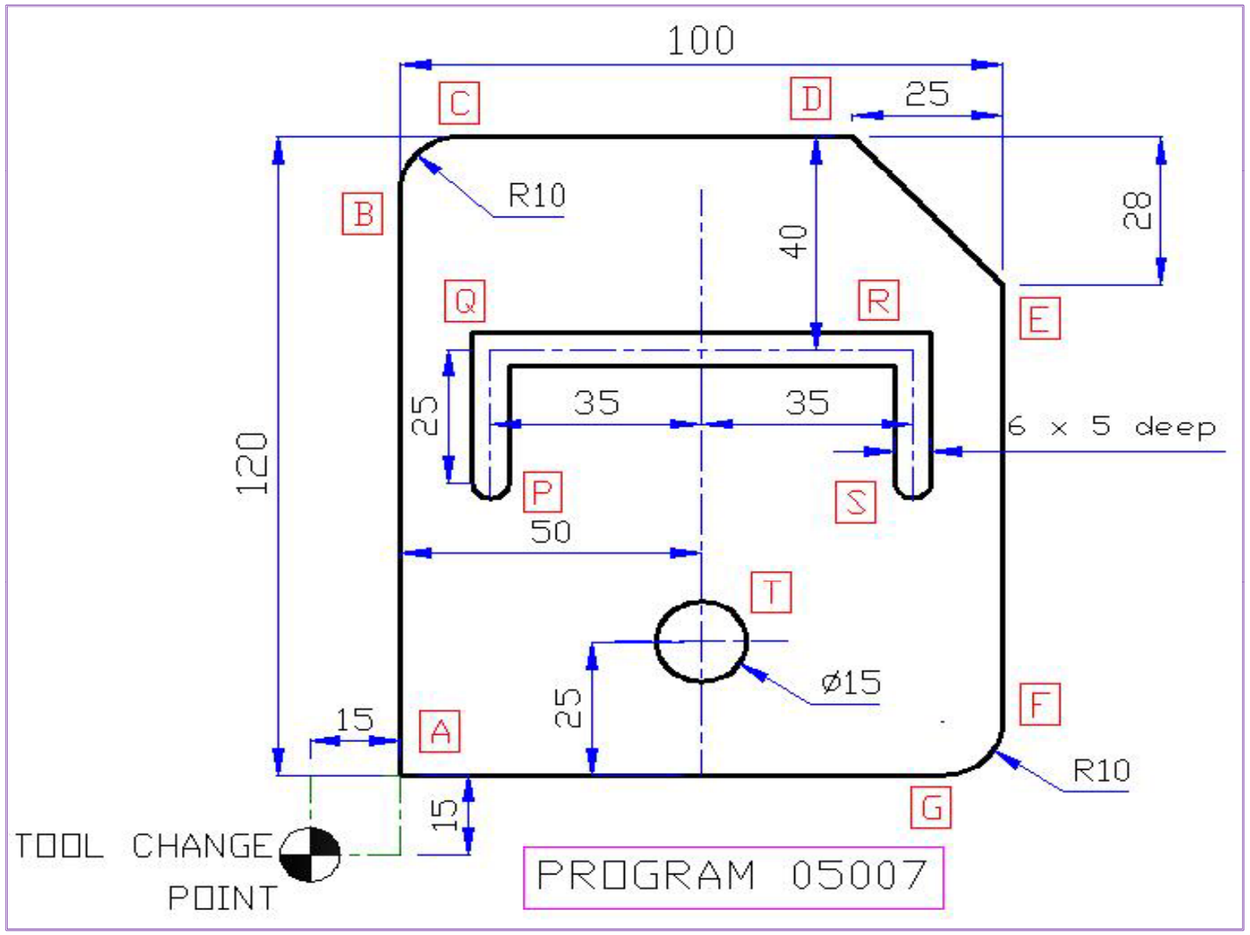
PROGRAM NO. 05007



Q. Write a CNC Part Program for the figure shown

For side milling, take speed 1200 rpm & feed 100 mm/min
For drilling holes, take speed 1200rpm & feed 80mm/min
For slot milling, take speed 1200rpm & feed 120mm/min
Take hole diameter as 15mm
Use absolute coordinate system.

Solution:

Sequence of operation:

1 Set ref point, cordinate system, tool, give feed & speed value
2 Set cutter for radius compensation left offset
3 set tool at A, start spindle & give down feed (-Z direction)
4 proceed further cutting of side milling and stop spindle at A
5 Move tool at ref point & set the tool for slot cutting
6 Move tool to P, start the spindle & give down feed
7 Proceed further cutting of slot milling and stop spindle at S
8 Move tool at ref point & set the tool for drilling
9 Move tool to P, start the spindle & give full depth cut
10 Move tool up & stop the spindle.
11 Bring back tool at refrence point.
12 End of the program

CNC Codes								Description
05007								Program No.
N001	G71	G90						Set dimension type mm, set absolute co-ordinate system
N002	G92	X-15.0	Y-15.0	Z0.0	T01	F100	S1200	Set reference point at 'O' (-15, -15, 0). Use tool T01(here side milling tool. Set Feed 100mm/rev, set spindle speed 1200 rpm
N003	G41	G00	X0.0	Y0.0	Z2.0			Cutter radius compensation - left ON, move the tool at A & give clearance of 2mm before starting spindle rotation
N004	G01	Z-15.0	M03					Start the spindle. Move tool down i.e. at Z direction for cut with feed (here M03 will execute first)
N005	G01	X0.0	Y110.0					Go to B linearly
N006	G02	X10.0	Y120.0	R10.0				Go to C with clockwise circular interpolation with radius = 10
N007	G01	X75.0						Go to D linearly
N008	G01	X100.0	Y92.0					Go to E linearly
N009	G01	Y10.0						Go to F linearly

CNC Codes					Description
N010	G02	X90.0	Y0.0	R10.0	Go to G with clockwise circular interpolation with radius = 10
N011	G01	X0.0			Go to A linearly
N012	Z2.0	M05			Go up 2mm in Z direction for clearance. Stop spindle rotation (here M05 will execute last).
N013	G40	G00	X-15.0	Y-15.0	Cutter radius compensation OFF. Move tool to reference set point.
N014	M06	T02	F120		Change the tool & use tool T02 (here for slot mill tool with dia 6mm). Set feed as 120mm/rev.
N015	G00	X15.0	Y55.0		Move tool to 'P' rapidly.
N016	G01	Z-5.0	M03		Start the spindle. Move tool 5mm down i.e. at Z direction for cut with feed (here M03 will execute first)
N017	Y80.0				Go to Q linearly.
N018	X85.0				Go to R linearly.
N019	Y80.0				Go to S linearly.
N020	Z2.0	M05			Go up 2mm in Z direction for clearance. Stop spindle rotation (here M05 will execute last).
N021	G00	X-15.0	Y-15.0		Move tool to reference set point.
N022	M06	T03	F80		Change the tool & use tool T03 (here for drill bit with dia 15mm). Set feed as 80mm/rev.
N023	G00	X50.0	Y25.0		Move tool to 'T'
N024	G01	Z-20.0	M03		Go down 20mm for assuring full depth of hole.
N024	Z2.0	M05			Go up 2mm in Z direction for clearance. Stop spindle rotation (here M05 will execute last).
N025	G00	X-15.0	Y-15.0		Move tool to reference set point.
N026	M30				Stop the program