M.E. First Semester (Mecha. Engg. (Adv. Manu. & Mech. Sys. Design)) (New-CGS)

13458 : Advanced Manufacturing Processes : 1 MMD 1

P. Pages : 2 | **AU - 3378**

Time : Three Hours | Max. Marks : 80

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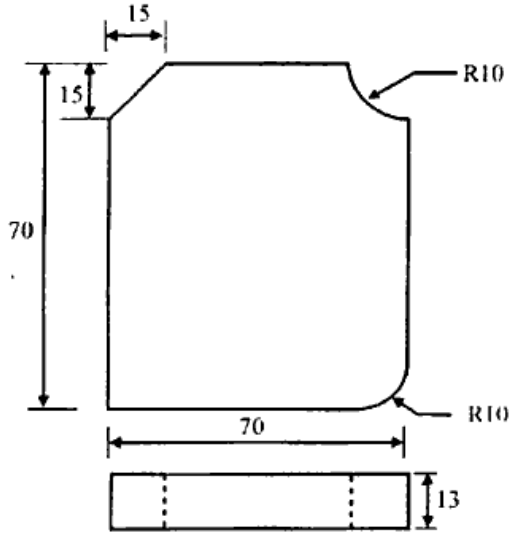
Notes : 1. Answer **three** question from Section A and **three** question from Section B.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.

1. a) The equation of tool life is given as $VT^{0.15} V f^{0.79} d^{0.39} = c$. **7**

A 50 min tool life was obtain while cutting at V 25m/min f = 0.4mm/rev. d = 2.5mm. Determine change in tool life if cutting speed, feed and depth of cut are increased by 25% individually and also taken together.

b) What do you mean by the "machinability" & discuss the variables affecting an machinability. **6**

2. a) Prepare the part program for making the component shown in fig. **13**



TOOL NO - 04
SPINDLE RPM. - 2500
FEED -1500 mm/min
DEPTH OF CUT - 0.5mm.
All dimensions are in mm.

3. a) Discuss the following feature of high end CNC syst. **7**

i) Diagnostic Feature
ii) Multi processor Architecture
iii) PLC

b) Explain the following tool path generation methods. **6**

4 a) What is maching centre? discuss in brief VMC & HML. **7**

b) Write note on: 6
i) Tool Presetting
ii) CNC Ball Screw.
iii) Servo Motor

5. a) Explain the design consideration of: 7
i) Gating Syst.
ii) Riser Syst.

b) Discuss: 7
i) Solidification Shrinkage
ii) Heat treatment of metal casting process

SECTION - B

6. a) What cause weldment to crack? Explain the reason and suggest the remedies. 7

b) Explain the principle of electromagnetic farming also discuss its industrial application. 6

7. a) Explain heat flow in the welding also discuss the effect of pre-heat and post heat treatment on weldability of material. 7

b) What are the cause of surface cracking & internal cracking in extrusion process. 6

8. a) Discuss the principle of explosive forming & stretch forming in brief. 7

b) Describe the defects in forging & write about its cause & remedies. 6

9. a) Write the significance of AJM Nozzle & EBM Vaccum chamber. 7

b) Describe the method of single sheet & double sheet hydroforming. 6

10. a) Explain the working principle of AWJM with neat sketch & How it differ from WJM. 7

b) Discuss the process parameter of EDM in details. 7

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