M.E. First Semester (Mechanical Engineering (Adv. Manu. & Mech. Sys. Desig.)) (New-CGS)

13458 : Advanced Manufacturing Processes : 1 MMD 1

AX - 3547

P. Pages : 2

Time : Three Hours

* 0 8 7 3 *

Max. Marks : 80

Notes : 1. Answer **any three** question from Section A & **any 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.
5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) The following data were recorded while turning the workpiece on lathe. **7**

Cutting speed = 25 m / min

feed = 0.5 mm / rev

doc = 2.5 mm

Tool life = 120 minutes.

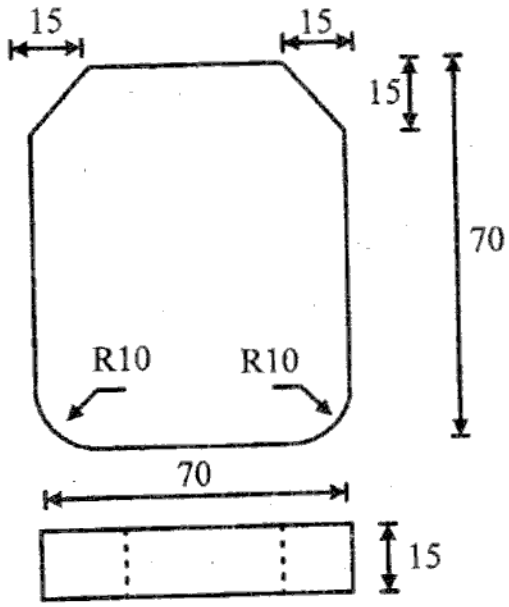
The tool life equation given for the operation.

$$VT^{0.12}.Vf^{0.7}.d^{0.3} = C$$

If the cutting speed, feed and doc are increased by 25%, what will be effect on tool life?

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

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



Tool No. – 05

Spindle RPM – 2500

Feed – 1600 mm / min

Depth of cut – 0.4 mm

All dimensions are in mm

3. a) Discuss the modern feature of high end CNC system. 7

   b) Explain the difference between point to point and continuous path type numerically controlled machine tools. 6

4. a) What is machining centre? Discuss VMC and HML in details. 7

   b) Explain in brief. 7

      i) CNC Ball screw

      ii) Tool presetting.

      iii) Servo motor.

5. a) What are the different elements of getting system? Explain in detail. 7

   b) Explain the design considerations of riser. 6

SECTION – B

6. a) Explain the working principle of "Electron Beam welding". State its limitations. 7

   b) Explain the nature of plastic deformation in metal forming along with neat sketch. 6

7. a) Discuss the explosive forming? Define Hydroforming? 6

   b) Explain double sheet hydro forming. 7

8. a) What do you understand by electromagnetic forming? Give its special industrial applications. 7

   b) Enlist the various defects in metal forming, also suggest measures to reduce the defects in the forming process. 7

9. a) What is the significance of electrolysis process in accordance with metal removal from ECM? 7

   b) Explain the arrangement of roller for rolling mill. 6

10. a) Explain the working principle of AWJM with neat sketch and how it is differ from WJM? 7

    b) Discuss the process parameters of EDM in details. 6

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