(3 Hours) Total Marks : 80

Note :(1) Question No.1 is compulsory and Answer 3 Questions remaining 5
  Questions.
  (2) Assume suitable data wherever necessary
  (3) Figurers to the right indicate full marks.
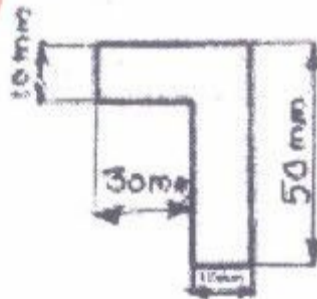
1. Answer **any four** of the following. 20
   a) What is meant by clearance applied to the cutting dies? What are the factors affecting it?
   b) Write the principles of pin locations.
   c) Explain principle and working of LASER beam machining.
   d) What is high speed machining? Write the requirements of high speed machining.
   e) How presses are classified?

2 a) Symmetrical cup of diameter 60mm and length 60mm and corner radius 1.5mm 10
   is to be drawn from cold rolled steel sheet of thickness 1.5mm. Calculate the blank size, percentage reduction, no. of draws, punch and die radius, clearance and drawing pressure. Ultimate tensile strength=440N/mm². C=0.7
   b) Explain following principles for the design of jigs and fixtures. 10
      i) fool proofing ii) ejectors iii) clearance

3 a) What is strip layout? Write factors affecting strip layout? Prepare economical 10
   strip layout for the component shown in figure from the sheet of 400mm X1200mm.

   b) Explain with neat sketch use of diamond pin. 05
   c) Explain any two types of quick acting clamps. 05

4 a) With the help of neat sketch explain the hot runner mold. Also write its 10
   applications, advantages & limitations.
   b) Explain the principles and working of electro-discharge machining with neat 10
   sketch. What are the functions and requirements of di-electric fluids?

[TURN OVER]

5 a)   Explain use of setting block and ten non in the design of milling fixtures.   7
   b)   With the help of neat sketch explain two piate molds.   7
   c)   What are automatic machines? Write its classifications.   6

6 a)   Explain principle and working of ultrasonic machining. List the abrasive used   10
        in USM. Also write its applications.
   b)   With the help of conceptual model illustrate the concept and enables of agile   10
        manufacturing.