

3 Hours



(80 Marks)

- N.B.: (1) All questions carry equal marks.  
 (2) Question No.1 Compulsory.  
 (3) Attempt any three from remaining five questions.  
 (3) Figures to the right indicate full marks.  
 (4) Draw neat sketches wherever necessary.

- Q 1 Sketch and explain the following.(any four) 20
- Diamond pin location.
  - Special bush in jigs.
  - Redundant location.
  - Interchangeability
  - Floating pad clamp
- Q2 State the following statements are true or false with reason. (any four) 20
- Captive C washer is time saving and fool proofing device.
  - If tennons are provided on milling fixture, setting block is not required.
  - Leaf jig cannot produce consistent accurate results..
  - Turning fixture needs balancing.
  - Use of Jig and fixture requires skilled labors.
- Q3 Design and draw a milling fixture for slot milling the 10mm slot in the base shown in the figure .this is the last machining operation to be done on the base. Details of the milling table are shown in the figure-1 20

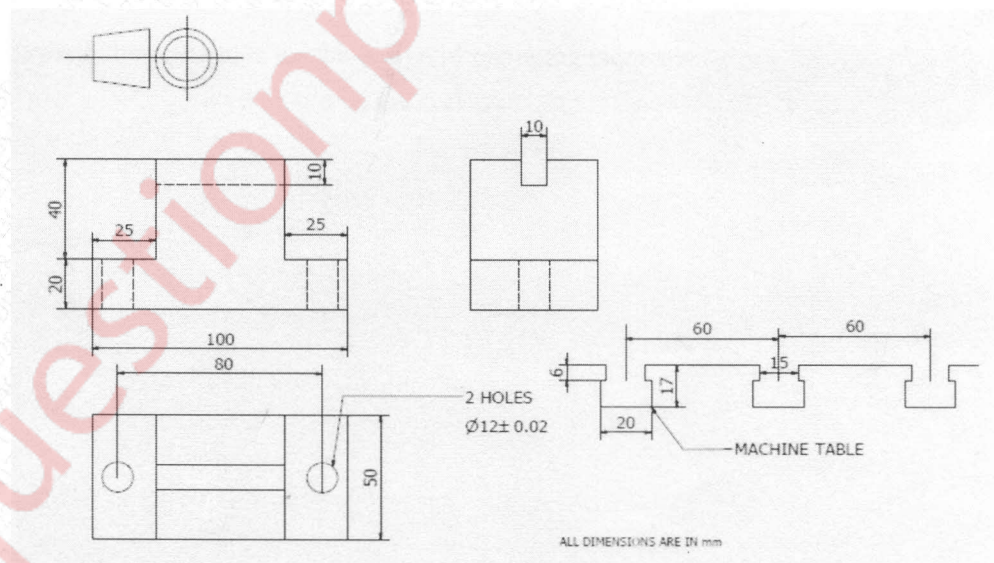


Figure-1

Q4 (a) What is tumble jig? Explain any one tumble jig with neat sketch.

12

OR

Design and draw a jig for drilling  $\text{Ø}6\text{mm}$  hole in the given component figure-2.

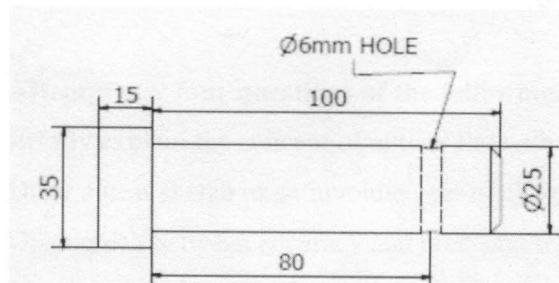


Figure-2

Q4 (b) What is modular fixture? Give advantages of modular fixtures.

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Q5 (a) What are the collets and mandrels used as a turning fixture?

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Q5 (b) List out advantages of jigs and fixtures.

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Q6 (a) What is jamming of locator? Explain method to avoid jamming.

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Q6 (b) Explain the principles for the design of clamping elements..

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