

[Total No. of Questions - 8] [Total No. of Printed Pages - 2]
(2064)

14759

M. Tech 2nd Semester Examination

Jigs Fixtures and Die Design

PE-208

Time : 3 Hours

Max. Marks : 100

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : There are eight questions. Attempt any five. Each question carries equal marks.

1. (a) Define jigs and fixtures. Classify both jigs and fixtures. Draw neat and labelled diagrams of two jigs and fixtures each. (10)
- (b) What types of jigs would normally be used to tap holes? Draw and explain. (10)
2. (a) Sketch and explain a turning fixture which can be used for holding non cylindrical components on a lathe for turning. (10)
- (b) Design, sketch and explain a broaching fixture used for broaching key ways in a flange. (10)
3. (a) What is a die? What are the elements of a die and a punch? (10)
- (b) Write short notes and draw neatly:
 - (i) Drawing die
 - (ii) Bending die
 - (iii) Progressive die. (10)

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4. (a) Explain the broad categories of clamps that are used for clamping. Write a short note on clamping forces. (10)
- (b) Write a note on automatic loading and unloading. (10)
5. (a) What is indexing? Explain double and multi axis indexing? (10)
- (b) Explain transfer line jigs for the operation of multi drilling; boring, milling and grinding. (10)
6. (a) What is modulation design concept? Explain. (10)
- (b) Explain with a diagram : assembly line fixtures. Also write about universal jigs and fixtures. (10)
7. (a) Sketch and explain a v type clamping device having a fixed v type and a moving v type locator. Give details of guiding a movable v type locator. Also give an example of the component for which this type of locator can be used. (10)
- (b) Sketch a strap type clamp for clamping a rectangular block. Give a parts list. Assuming that a milling operation is going to be performed on the block, compare the directions of tool force and clamping force. (10)
8. (a) Explain the four types of fits with the help of diagrams. (10)
- (b) Write about the materials that are used in making jigs and fixtures. (10)