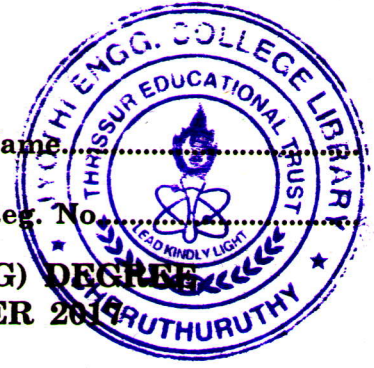


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Name.....

Reg. No.....



**SEVENTH SEMESTER B.TECH. (ENGINEERING) DEGREE
[2014 SCHEME] EXAMINATION, NOVEMBER 2014**

Mechanical Engineering

ME 14 705 D—DESIGN OF JIGS AND FIXTURES

Time : Three Hours

Maximum : 100 Marks

(Use of Approved Data Book is permitted).

Part A

Answer any eight questions.

Each question carries 5 marks.

1. What are the materials used for jig components ?
2. What is locating ? Briefly explain the 3-2-1 principle.
3. What are the advantages, limitations and applications of channel jig ?
4. What are the applications of rack and pinion operated jigs ? Enumerate its features.
5. Name any four components of a milling fixture. What is the use of setting block ?
6. Differentiate jigs and fixtures.
7. State the four main considerations in the design of jigs and fixtures.
8. What are quick change fixtures ?
9. What is multi-station jig ? Name its applications.
10. What are the important elements of inspection fixtures ?

(8 × 5 = 40 marks)

Part B

UNIT I

1. Explain various types of locators and its features with neat sketches. (15 marks)

Or

2. Describe the principles of locating and clamping. Sketch and explain V-type locating device having fixed V and movable V locator.

(15 marks)

Turn over

UNIT II

3. Describe various types of clamping with neat sketches with their specific applications.

(15 marks)

Or

4. What is meant by vacuum clamping? Sketch a strap type clamp for clamping a rectangular block. Give a part list. How do you arrive at the clamping forces required? Explain with suitable illustrations.

UNIT III

5. (a) Explain various types of drill bushes with neat sketches.

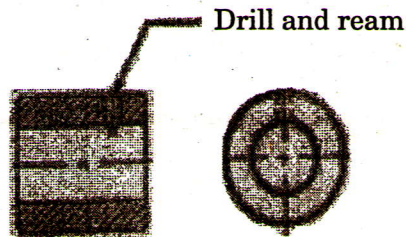
(7 marks)

- (b) Describe post jig with neat sketches.

(8 marks)

Or

6. Design a suitable jig for the component shown in Figure.



Size : Length = 72 mm. OD = 48 mm, ID = 30 mm ; hole size = 6 mm ;
Location of hole: 22 mm. from one end.

UNIT IV

7. (a) What are the types of lathe fixtures? Explain with illustrations.

(7 marks)

- (b) Write short note on assembly and welding fixtures.

(8 marks)

Or

8. Design a string milling fixture for cutting a slot of 3 mm. wide 3 mm. deep on one face of a 46 mm. diameter circular MS pin of 70 mm. long. Number of pieces to be machined is 50. Assume suitable data if required.

(15 marks)

[4 × 15 = 60 marks]