

# BOARD OF TECHNICAL EDUCATION

PORVORIM-GOA

November, 2008 Examinations

Programme: Production Engineering/TD/M

Course/Subject: Jigs and Fixture Design (4071)

Time Duration: 4 Hrs.

Max. Marks: 75

**INSTRUCTIONS:** 1. All Questions are compulsory.  
2. Figures to the right indicate full marks.  
3. Assume suitable additional data if required.

Q.No.1. Answer any five :-

(5x3=15)

- a) Write a short note on materials used for jigs and fixtures.
- b) Explain the six point principle with the help of a neat sketch
- c) Explain with a sketch Fool proofing.
- d) Explain the requirements of a good locating system.
- e) What are the main elements of jigs and fixtures, explain them briefly.
- f) Mention where each of these fit is applied.
  - i) Running fit ii) Push fit iii) Press fit iv) Force fit

Q.No.2. Answer any Two:-

(2x7=14)

- a) Briefly explain principles of location using suitable sketches.
- b) Explain linear indexing using a neat sketch.
- c) i) Write short note on design principle for drill bushings.
  - ii) Classify different types of drill bushes.

Q.No.3. Design a milling fixture to mill the 72 diameter face shown in fig 1. Draw any two views of the assembly with dimensions. (30)

OR

Design a drill jig to drill the R8, 2 holes for the component shown in fig 1. Show important dimensions on the figure.

Q.No.4. Answer any two:-

(2x8 =16)

- a) Explain the principles of clamping.
- b) With sketches show the locating methods for the following
  - i) Plane Surface ii) Profile Surface iii) Cylinder
- c) Draw free hand sketches of following clamps (any 2)
  - i) Strap clamp ii) Edge clamp iii) 'C' washer & captive 'C' washer
  - iv) Equaliser

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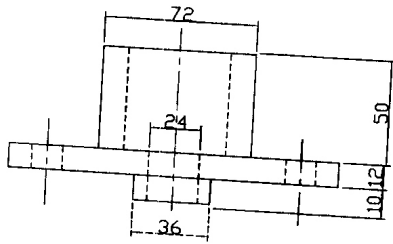
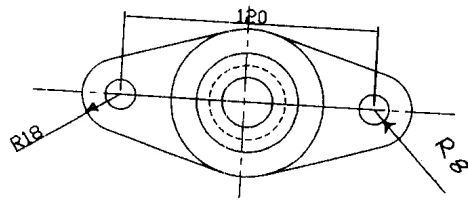


FIG 1

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# BOARD OF TECHNICAL EDUCATION

PORVORIM-GOIA  
May/June, 2009 Examinations

Programme: PRODUCTION ENGINEERING/MECHANICAL ENGG

Course/Subject: JIGS AND FIXTURE DESIGN (4071)

Time Duration: 4 Hrs.

Max. Marks: 75

**INSTRUCTIONS:** 1. All Questions are compulsory.  
2. Figures to the right indicate full marks.  
3. Assume suitable additional data if required.

Q.No. 1. Write short notes on ANY THREE of the following:- (5x3=15)

- Renewable Bushes.
- Toggle Clamp.
- Diamond Pin locator.
- Degrees of Freedom.
- Indexing plate.
- Strap clamp.

Q.No. 2. Answer ANY ONE of the following:- (10x1=10)

- Explain the essential features of milling fixture with a free hand sketch.

OR

- Explain the working of any quick action clamp with a neat sketch.

Q.No. 3. Design a drill jig to drill 4 Nos. 10 $\phi$  holes in the work piece shown in the fig(1). Your design should include. (50)

- At least two views with dimensions of the jig.
- Bush details.
- Bill of materials.

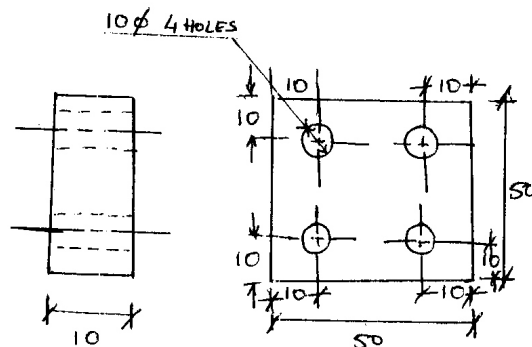


FIG (1)

MAT: M.S.

QTY: 5000 Nos

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