

**UNIVERSITY COLLEGE TATI (UC TATI)****FINAL EXAMINATION QUESTION BOOKLET**

COURSE CODE	: DTD 1022
COURSE	: JIGS AND FIXTURES DESIGN
SEMESTER/SESSION	: 1-2023/2024
DURATION	: 3 HOURS

Instructions:

1. This booklet contains 4 questions. Answer **all** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 4 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

- a) **Determine** three (3) aims when dealing with mass production. Provide (6 marks) the solution to fulfill those.
- b) **Identify** two (2) classification of jigs and fixtures. Provide one (1) example (4 marks) for each.
- c) **Distinguish** between a "Production device" and "Inspection device". (4 marks)
- d) **Explain** how to restrict the movement and positioned part properly. (4 marks)
- e) **Describe** two (2) main types of jigs and fixtures used for milling operation. (5 marks)

QUESTION 2

- a) **Discover** three (3) basic rules for clamping and briefly explain. (6 marks)
- b) **State** four (4) methods of clamping are common to both jigs and (4 marks) fixtures.
- c) **Predict** three (3) major concern that the designer must keep in mind (6 marks) when clamping a part.
- d) **Distinguish** between internal and external locators and how to (7 marks) positioning the locators.
- e) **Interpret** the term of nonmechanical clamping and the reason to apply (5 marks) this method.

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QUESTION 3

- a) **Classify** three (3) common types of drill bushings use in drill jigs. Choose any one (1) of your answer and explain in detail. (5 marks)
- b) **Illustrate** the three (3) installation methods for drill bushing and sketch. (5 marks)
- c) **Explain** the importance of specialized tooling for jigs and fixtures application in industries. (4 marks)
- d) **Discover** the purpose of tool body. Lists three (3) general forms of tool bodies. (9 marks)

QUESTION 4

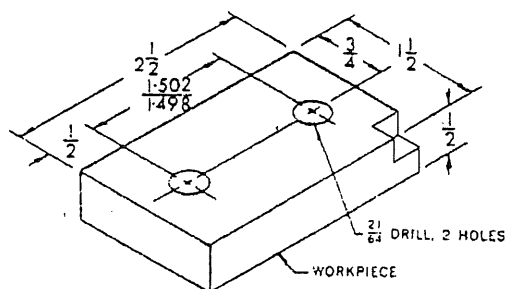


Figure – 1

- a) In the figure – 1 shown above is a workpiece called Block Support. Two holes needed to be drilled on one side of the support. In order to make sure correct and secured position is drilled, you need to design jigs and fixtures. **Sketch** a simple drill jigs design of maximum three views. (10 marks)
(Note: No dimension needed in the sketch.)
- b) **Show** relevant supports and locators. Also add or **identify fool proofing element** to the sketch given. (10 marks)
- c) **Explain** the most efficient method of designing any jigs. (6 marks)

-----End of question-----

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Criteria	Marks
All questions answered will be marked according to the answer scheme	/ 100