



UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: DTD 1022
COURSE	: JIGS AND FIXTURES DESIGN
SEMESTER/SESSION	: 2-2024/2025
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

JIGS AND FIXTURES DESIGN (DTD 1022)

QUESTION 1

- a) **Describe** the function of jigs and fixtures in manufacturing process (6 marks) operation.
- b) **Clarify** the purpose of two general types (open and closed) used for drill (4 marks) jigs.
- 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** the purpose of ejector being used for locating from an external (5 marks) profile.

QUESTION 2

- a) **Discover** the criteria used by tool designer in determining the types of (6 marks) clamp chooses.
- 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 for more effective and efficient result.
- 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 and briefly explain. (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

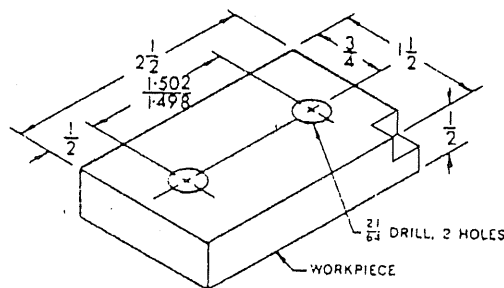


Figure – 1

- 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