



UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

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| COURSE CODE | : DTD 1022 |
| COURSE | : JIGS AND FIXTURES DESIGN |
| SEMESTER/SESSION | : 1-2024/2025 |
| 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

QUESTION 1

- a) **Define** the terms of jigs and fixtures used in workshop or industries. (6 marks)
- b) **Explain** the purpose of jigs and fixtures used in industries. (3 marks)
- c) **Explain** the different of working category area for ;
i. Production
ii. Batch Production
iii. Mass Production (6 marks)
- d) **Predict** three (3) primary methods of locating the work from a flat surface. (3 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 fixtures. (4 marks)
- c) **Predict** three (3) major concern that the designer must keep in mind when clamping a part. (6 marks)
- d) **Distinguish** between internal and external locators and how to positioning the locators. (7 marks)
- e) **Interpret** the term of nonmechanical clamping and the reason to apply this method. (5 marks)

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)

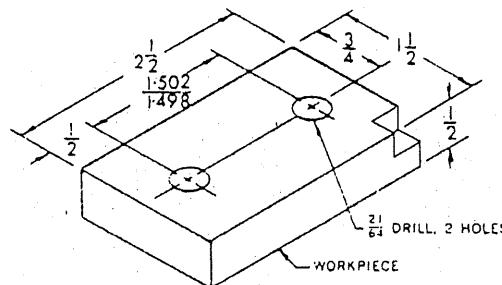
QUESTION 4

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. (8 marks)
(Note: No dimension needed in the sketch.)
- b) **Show** relevant supports, locators and bushing. Also add or **identify fool proofing element** to the sketch given. (12 marks)
- c) **Explain** the most efficient method of designing any jigs. (6 marks)

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

JIGS AND FIXTURES DESIGN (DTD 1022)

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