

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

COURSE CODE	: DTD 2112
COURSE	: METALLURGY
SEMESTER/SESSION	: 1-2021/2022
DURATION	: 2 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 3 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

- a. **Explain** the crystalline structure (8 marks)
- b. With aided sketch, **illustrate** and **describe** body centre cubic crystalline structure (6 marks)
- c. **Explain** the stainless steel and give their two (2) categories (8 marks)
- d. **Discover** two (2) alloying element and their purpose in steel (6 marks)

QUESTION 2

- a. **Explain** peritectic reaction in Fe-C phase diagram (6 marks)
- b. **Give** the composition of mass fraction for **Liquid** and α at Figure 2 (8 marks)

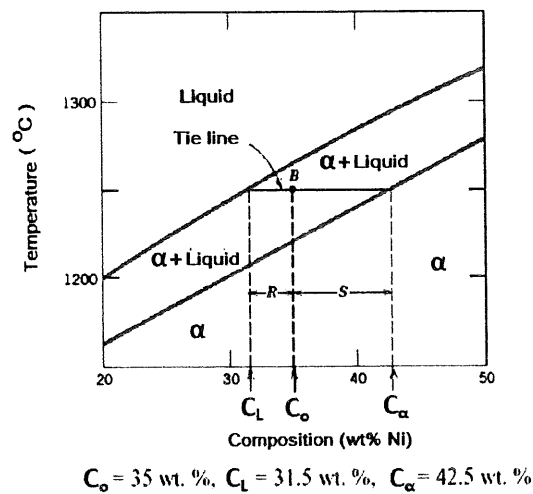


Figure 2: Nickel composition of an alloy

- c. **Describe** normalizing process and give four (4) purpose of normalizing process for tool steel (14 marks)

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QUESTION 3

- a. **Define** the carburising process (6 marks)
- b. **Discuss** two (2) purpose of surface hardening (8 marks)
- c. **Give** the differences between elastic and plastic deformation (8 marks)
- d. **Explain** the toughness properties (6 marks)

QUESTION 4

- a. **Define** the Non Destructive test (5 marks)
- b. **Discover** two (2) common application of Non Destructive test (5 marks)
- c. **Interpret** three (3) purpose of Non Destructive test in industry (6 marks)

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

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

