



UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: DTD 2112
COURSE	: METALLURGY
SEMESTER/SESSION	: 2-2022/2023
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

- Explain** what is metals (8 marks)
- With aided sketch, **illustrate** and **describe** solidification process (6 marks)
- Explain** the medium carbon steel and give the application of steel (8 marks)
- Discover** three (3) alloying element and their purpose in steel (6 marks)

QUESTION 2

- Define** component, phase and solubility limit (6 marks)
- Give** the composition of mass fraction for **Liquid** and α at Figure 2 (8 marks)

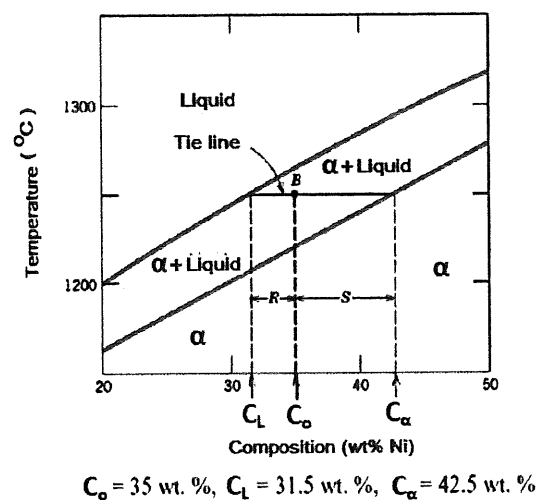


Figure 2: Nickel composition of an alloy

- Describe** tempering process and give three (3) situation can be consider in tempering process for tool steel (14 marks)

QUESTION 3

- a. **Discuss** surface hardening and their purposes (8 marks)
- b. **Discuss** the pack carburising process (6 marks)
- c. **Give** the differences between elastic and plastic deformation (8 marks)
- d. **Explain** progress of tensile test specimen (6 marks)

QUESTION 4

- a. **Define** the Non Destructive test (5 marks)
- b. **Explain** when and why non destructive test used (6 marks)
- c. **Discover** liquid penetrant test and the inspection process (5 marks)

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

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

