



DEDAN KIMATHI UNIVERSITY OF TECHNOLOGY

University Examinations 2021/2022

**YEAR ONE SEMESTER TWO EXAMINATION FOR THE DEGREE OF MASTER OF
SCIENCE IN LEATHER TECHNOLOGY**

SLT 6102 ADVANCED LEATHER CHEMISTRY

Date: JANUARY 2022

Time: 3 Hours.

INSTRUCTIONS: Attempt all questions

QUESTION ONE (15 MARKS)

- a) Special classes of synthetic tannins (syntans) have been created with tanning properties similar to the vegetable ones, which offer some important advantages like white colour and fastness to light. List the three classes of syntans and outline how they interact with the collagen [9 marks]
- b) Outline the recent advances in pre-tanning processes chemicals [6 marks]

QUESTION TWO (15 MARKS)

- a) Green tanning has gathered momentum in the recent past especially in the increasing efficiency of chrome tanning and reducing pollution load. Outline the advances in tanning to replace or reduce chrome in tanning processes [10 Marks]
- b) Elucidate the mechanism of combination tannage [5 Marks]

QUESTION THREE (15 MARKS)

- a) Explain the use of microbial enzymes as an alternative to conventional chemicals in leather tanning [3 Marks]
- b) Enzymes have gained traction in the tanning industry, list the three main enzymes in leather tanning and outline their mode of action [6 Marks]
- c) Discuss the use Alkaliphilic Enzymes in Novel Leather Processing Technology [6 marks]

QUESTION FOUR (15 MARKS)

- a) Advances in leather finishing chemicals have allowed the preparation of specialty leathers with a range of properties. With examples discuss different auxiliaries used in leather finishing and the resultant properties of leather [10 Marks]
- b) Novel nano-finishes have been formulated for enhancing performance properties in leather finishing applications, with examples list such applications and properties enhanced [5 Marks]