



Institute of
Cape Wine Masters

DISCOVERING WINE

CAPE WINE MASTER EXAMINATION THEORY: VITICULTURE

28 October 2024

Total marks: 250

Time: 3 hours

INSTRUCTIONS TO CANDIDATES:

- Please ensure that you have signed the exam register.
- Please write your CWM registration number on every page.
- Please use a pen if writing your exam by hand.
- Please write clearly. Illegibly written answers cannot be marked.
- If typing, please ensure that your device is disconnected from wifi after downloading the word document answer sheet.
- No copying and pasting is allowed for typed answers.
- Typed answer sheets must be emailed to the invigilator within 10 minutes of finishing. Candidates may not leave until the invigilator has confirmed receipt of their paper.
- Examination question papers, answer books and any rough paper must be handed in to the invigilator at the end of the examination.
- Please switch off cell phones and other electronic devices for the duration of the examination.
- You may leave the room within the first half hour, or the last half hour.
- Read the questions carefully and answer only what is asked.
- Please number your answers clearly to correspond with the questions.
- The length of an answer should be in proportion to the number of marks available.
- Answer 5 questions for 50 marks each.
- Question 1, 2, 3 and 4 is COMPULSORY (SECTION A) while Question 5 OR Question 6 is optional (SECTION B)

SECTION A (Compulsory)

Question 1: 50 marks

Question 2: 50 marks

Question 3: 50 marks

Question 4: 50 marks

TOTAL SECTION A: 200 marks

SECTION B (choose one question)

Question 5: 50 marks

Question 6: 50 marks

TOTAL SECTION B: 50 marks

TOTAL PAPER: 250 marks

SECTION A

QUESTION 1 (COMPULSORY)

- 1.1 Discuss the factors that determine the effective depth of a soil. (20)
- 1.2 "Soil colour is a key determinant of soil fertility."
Discuss this statement and its relation to soil types in the success of viticulture. (7)
- 1.3 What practises can a vineyard manager/viticulturist follow to address low fertility caused by soil types. (5)
- 1.4 Evaluate the contribution of soil type to produce Chardonnay and Cabernet Sauvignon in a local and international wine region. (9x2=18)

[Total: 50 marks]

QUESTION 2 (COMPULSORY)

- 2.1 List three wine regions with the following climatic conditions:
- 2.1.1 Marginal climate (3)
 - 2.1.2 Continental climate (3)
 - 2.1.3 Maritime climate (3)
 - 2.1.4 Mediterranean climate (3)
- 2.2 Discuss the influence of water bodies on the climate in the Hemel-en-Aarde ward and Elgin wine district. (10)
- 2.3 Critically discuss which sites you would select for the planting of the following cultivars:
- 2.3.1 Chardonnay (4)
 - 2.3.2 Merlot (4)
 - 2.3.3 Cabernet Sauvignon (4)
- 2.4 Discuss three (3) climatic indexes used in viticulture globally. (16)

[Total: 50 marks]

QUESTION 3 (COMPULSORY)

3.1 Discuss Chenin Blanc, Pinotage and Shiraz grape cultivars in terms of the following characteristics:

3.1.1 Growth habit (3x2=6)

3.1.2 Leaf characteristics (3x2=6)

3.1.3 Bunch morphology (3x2=6)

3.1.4 Berry morphology (3x2=6)

3.2 Why are rootstocks used in viticulture? (6)

3.3 List the top five (5) rootstocks used in South Africa. (5)

3.4 Study the following scenario and evaluate the choice of rootstock. Indicate whether you agree with the choice of rootstock and motivate your answer. If you disagree, recommend an alternative rootstock and motivate. (15)

Scenario

- Wine goal: Premium to ultra-premium Shiraz
- Irrigation: Available
- Climate and area: Cool. (Hermanus)
- Soil characteristics: Clay soil with good water keeping capacity. No signs of excessive lime or salinity and a pH of 6.1
- Plant spacing: 2.5m x 1.4m
- Rootstock: Ramsey

[Total: 50 marks]

QUESTION 4 (COMPULSORY)

4.1 List the most important trellis systems found in the following wine regions:

4.1.1 Mendoza, Argentina (2)

4.1.2 Champagne, France (2)

4.1.3 Swartland, South Africa (2)

4.1.4 Santorini, Greece (2)

4.1.5 Stellenbosch, South Africa

4.2 Discuss the advantages and disadvantages of trellis systems and the impact of this on grape chemistry. (15)

4.3 Critically evaluate the trellis systems used in Robertson and the impact on wine style and quality. (15)

4.4 What are the advantages for high- and low-density planting in vineyards. (10)

[Total: 50 marks]

SECTION B

QUESTION 5 (Optional)

5.1 Discuss the importance of nutrition for grapevines. (15)

5.2 What is the impact of deficiencies/toxicities of nutrients mentioned in question 5.1. (10)

5.3 Which grapevine diseases are the biggest threat to global viticulture and why? (25)

[Total: 50 marks]

QUESTION 6 (Optional)

6.1 What are the differences between the following viticultural practices:

6.1.1 Regenerative viticulture (3)

6.1.2 Organic viticulture (3)

6.1.3 Biodynamic viticulture (3)

6.1.4 Conventional viticulture (3)

// Question 6 continued

6.2 What are the challenges for each of the practices listed in question 6.1. (12)

6.3 Give an example of a producer using each of these practices in South Africa and internationally. (8)

6.4 Discuss the role and potential future application of hybrids in viticulture. (18)

[Total: 50 marks]

[Total: 250 marks]