



CAPE WINE MASTER EXAMINATION
THEORY: WINEMAKING

29 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 250 marks.

ANSWER ALL QUESTIONS	
Question 1:	70 marks
Question 2:	38 marks
Question 3:	41 marks
Question 4:	56 marks
Question 5:	45 marks
TOTAL:	250 marks

Question 1

1. Refer to the Fact Sheet of the Damascene Stellenbosch Syrah 2022 and write explanatory notes on the following phrases to provide context to an audience and clarify the intention of the winemaker:

- 1.1 . “...the whole cluster fraction...” (10)
- 1.2 “...tulip shaped concrete fermenters...” (10)
- 1.3 “...submerged cap technique...” (10)
- 1.4 “...naturally-occurring yeasts...” (10)
- 1.5 “...Malolactic conversion occurred spontaneously...” (10)
- 1.6 “...bottled without fining...” (10)

2. With reference to the information contained in the Fact Sheet, interpret and discuss the intention of the winemaker for the wine and its positioning in the international market. (10)

[Sub-Total : 70 marks]

Question 2

Refer to the Vinlab Wine Analysis Request Sheet and answer the following questions in as much detail as possible:

- 2.1 What is **extract** and how and why would a winemaker want to manage it? (6)
- 2.2. What is **pinking** and with which styles of wine and cultivars is it associated with? (6)
- 2.3 Discuss the difference between **glucose** and **fructose** in the fermentation of wine. Please also refer to the factors affecting **yeast conversion rates** and the range of conversion from Balling to % alcohol. (12)
- 2.4 What is **protein stability** in wine, the possible negative impact protein instability it could have on wine and how to fix the problem. (6)
- 2.5 The difference between **Free SO₂** and **Total SO₂** and the legal permitted levels for both in South Africa for a dry red wine and a sulphur-free wine. (8)

[Sub-Total : 38 marks]

Question 3

Tannin additives in winemaking are highly versatile that can be used for various reasons at various stages during winemaking.

- 3.1 What is the difference between condensed tannins and hydrolysable tannins in wine? (8)
- 3.2 Discuss the use of oenological tannins and their use in winemaking to obtain results under the following headings:
- 3.2.1 Colour stability (5)
 - 3.2.2 Protein stability (5)
 - 3.2.3 Mouthfeel and sensory properties (5)
 - 3.2.4 Antioxidant (5)
 - 3.2.5 Bacteriostatic effect (3)
 - 3.2.6 Mercaptan removal (5)
 - 3.2.7 Wine maturation potential (5)

[Sub Total: 41 marks]

Question 4

The next three questions pertain to the use and effect of oxygen in wine.

- 4.1 The Ataraxia 'Black' Chardonnay and Jordan Nine Yards Chardonnay is an example of the hyper oxidation of juice. Discuss this winemaking approach in detail and the results. (8)
- 4.2 Write down the basic reaction of an alcoholic fermentation and discuss the role of oxygen in fermentation - positive and negative? (18)
- 4.3 Discuss dissolved oxygen in wine after the end of fermentation and how it is managed during the various winemaking processes and at bottling? (30)

[Sub Total: 56 marks]

Question 5

In November 2024, we are celebrating 100 years since Professor Perold created Pinotage and today, there are various styles of Pinotage at different price points, including the emergence of 'New Wave Pinotage'. Describe briefly the making of the different styles from the stage of grape picking until bottling of the following:

5.1 Dry Pinotage Rosé with an ABV 13% retailing at R85.00 per 750ml retail **(15)**

5.2 Aromatic 'New Wave' red wine with an ABV 12.5% at R250.00 per 750ml retail **(15)**

5.3 A rich, full bodied red wine with an ABV 14.5% at R1500.00 per 750ml retail **(15)**

[Sub Total: 45 marks]

// TOTAL PAPER : 250 marks

DAMASCENE

DAMASCENE STELLENBOSCH SYRAH 2022

WINEMAKER

ORIGIN

VARIETALS

Jean Smit

Stellenbosch

100% Syrah



TASTING NOTES

Vanguard aromas present a striking tapestry of spice, fruit, and herbs. Notes of dried rosemary, fennel, rocket leaf, and Madagascan pink peppercorn form vertical seams, interwoven with broader horizontals of blackberries, red cherry, and spiced orange rind.

On the palate, this wine exhibits remarkable agility, with fine yet firm fruit skin tannins framing high-contrast flavours of juicy blackberry, sour cherry, white pepper, and fennel. The wine concludes with a lingering flourish of dried violets, lavender, and raspberry.

VINEYARD

Syrah grapes were sourced from two distinct vineyard sites in the Stellenbosch district. Both vineyards are situated higher than 300-metres above sea level, planted with SH9 and SH22 Syrah clones. The soils are dominated by decomposed granite, and each site brings its own nuance and complexity to the wine.

The vineyard in the Polkadraai Hills was planted on a southeast-facing slope in 1996, and the fruit from this vineyard makes up about 80% of the final blend. This component contributes impressive levels of perfume and spice to the wine. The Damascene viticultural team has also planted a further 1.2 ha on this site to ensure continuity of supply into the future.

Finally, the firm structure and fruit intensity on the wine comes from a low-yielding vineyard planted in granitic soils in the Bottelary ward; a 'mother unit' planted in 2001 along a northwest aspect.

WINEMAKING

The fruit for this wine was harvested by hand between 16 and 23 March, 2022, at a ripeness of between 24.1 and 25.3°B. The fruit was chilled down to 8°C overnight prior to fermentation. To showcase the impact of site in the formation of a Stellenbosch Syrah, the harvested fruit was separated into numerous smaller fermentation batches, with the whole cluster fraction of each batch ranging from 60-75 percent per vessel. Fermentation took place in tulip-shaped concrete fermenters and 1000-litre conical French oak vats, which received pump-overs twice per day. The remaining two 1000-litre conical oak vats were treated with the 'submerged cap' technique to enhance the body and fruit concentration of the wine. All fermentations took place spontaneously with naturally-occurring yeasts. Malolactic conversion occurred spontaneously, with maturation in 2000-litre conical Austrian oak vats for 11 months. The wine was bottled without fining to ensure a more complex and authentic expression of Syrah.

MATURATION

This wine will be at its most expressive within three to five years of vintage but, with careful cellaring, will continue to evolve and improve for more than a decade.

TOTAL PRODUCTION

6600 x 750ml and 90 x 1.5L

BOTTLING DATE

16 January 2023

Alc: 13.1 % Vol

pH: 3.91

TA: 4.7 g/L

RS: 1.2 g/L

VA: 0.52 g/L

It's that transformative moment. A singular experience of shifting perspective. DAMASCENE is about seeking out memorable vineyards and sites that showcase the incredible diversity of character in the various terroirs around the Western Cape.

34°11'1.38"S 19°4'0.19"E

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WINE (GENERAL) - ANALYSIS REQUEST FORM

Company		Email			
Contact person		Date ____ / ____ / 20__		Tel	
Sample number (for laboratory use only)	Sample nr	Sample nr	Sample nr	Sample nr	Sample nr
Cultivar / Product					
Description					
Tank number					
Vintage					
Alc	Label/Pyc	± 0.2 % v/v			
	WScan	± 0.3 % v/v			
Extract		g/L			
Specific Gravity (SG)					
Residual Sugar (RS)		± 0.5 g/L			
Volatile Acidity (VA)		± 0.05 g/L			
pH		± 0.1			
Titratable acidity (TA)		± 0.2 g/L			
Free SO₂	Ripper	± 5 mg/L			
	Asp	± 5 mg/L			
Total SO₂	Ripper	± 8 mg/L			
	Asp	± 8 mg/L			
Protein Stability					
Bentonite fining		g/hl			
Cold Stability		Quick Freeze			
		3-Day Freeze			
		6-Day Freeze			
Cold Stability Trials		CMC			
		Zenith Colour			
		Zenith Uno			
Stabilab (Conductivity)		%			
Drop-Out		g/L			
Pinking					
Malic Acid		g/L			
Lactic Acid		g/L			
MLF		%			
Filterability					
Turbidity		ntu			
CO₂					
Dissolved O₂ (Tank samples)		EXTRA BOTTLE NEEDED			
Total Oxygen (Bottled wine)					
Pressure		bar at 20°C			
Colour	420, 520, 620 nm	au			
Optical Density at 280 nm		au			
Sorbic Acid		mg/L			
Sorbic Acid (for export purposes)		mg/L			
Tartaric Acid		g/L			
Glucose		g/L			
Fructose		g/L			
Metals	Cu, Fe, Ca, K	mg/L			
Sterility	EXTRA BOTTLE NEEDED				
Micro ID					
Tasting note					
Panel: Red Wine Phenolics					
Panel: Filtration Decision					
Panel: Slow/Stuck Ferment					
Panel: Stuck MLF					
Panel: Brett Management					

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