

**GAUTENG DEPARTMENT OF EDUCATION
SENIOR CERTIFICATE EXAMINATION**

COMMERCIAL MATHEMATICS SG

QUESTION 1

- 1.1 1.1.1 Mean: $840 \div 6$
 $= 140$
 $= 77$ (4)
- 1.1.2 Mode: 77 (3)
- 1.1.3 35; 77; 77; 97; 214; 340
 Median $\frac{77 + 97}{2} = \frac{174}{2}$
 $= 87$ (5)
- 1.2 $\frac{5}{6} \div \left(\frac{2}{27} + \left(\frac{2}{3} \right)^3 \right)$
 $= \frac{5}{6} \div \left(\frac{2}{27} + \frac{8}{27} \right)$
 $= \frac{5}{6} \div \frac{10}{27}$
 $= \frac{9}{4}$
 $= 2 \frac{1}{4}$ (6)
- 1.3 15 kg pure coffee at R35 per kg : 15 kg x 35 = R525
 25 kg chicory at R4,60 per kg : R4,60 x 25 = R115
 40 kg of mixture cost : R525 + 115 = R640
 Ave price of mixture per kg : $\frac{R640}{40} = R16,00$
 \therefore Ave price of mixture per 250 g : R16 \div 4 = R4,00 (7)

[25]

QUESTION 2

- 2.1 Creditor's claim:
 $R14\ 000 \div 33\frac{1}{3} \times 100$
 $= 14\ 000 \div \frac{1}{3}$
 $= 14\ 000 \times 3$
 $= R42\ 000$ (6)
- 2.2 Realisation of assets: $9\ 240 + 150\ 000 + (8 \times 7\ 200) = 5\ 760 = R165\ 000$
 Less preferent claims $150\ 000 + 4\ 400 = 154\ 400$
 Amt available to Creditors $165\ 000 - 154\ 400 = 106\ 000$
 Total creditor' s claims $11\ 200 + 10\ 000 = 21\ 200$
- Final dividend paid out $\frac{10\ 600}{21\ 200} \times \frac{100}{1}$
- $= 50\ c\ in\ the\ Rand.$ (19)
[25]

QUESTION 3

3.1 Profit on article sold

$$450 \times \frac{25}{75}$$

$$= 150$$

(7)

3.2

MP
130CP
100Let the CP be
∴ MP isR100
R130

MP

SP

CP
100
X

Profit/Loss

Sale 780 700

$$\text{CP for 780 MP : } \frac{R780 \times 100}{130}$$

$$= R600$$

therefore Profit at SP of R700 = R100

$$\text{Profit \% on 780 CP: } \frac{100}{600} \times \frac{100}{1}$$

$$= 16\frac{2}{3} \%$$

(14)

3.3 3.3.1 SP CP PROFIT

125 100 25
560 X

$$\text{Cost Price of the dealer: } \frac{R280 \times 100}{125}$$

$$= R448$$

(7)

3.3.2 The CP of the dealer is the SP of the wholesaler

SP CP PROFIT

100 88 12
448 X

$$\text{CP of the Wholesaler: } \frac{R448 \times 88}{100}$$

$$= R394,24$$

(7)

[35]

QUESTION 4

4.1 Proceeds from 9% stock: $\frac{9\,000}{100} \times 110$
 $= R9\,900$

No of shares bought: $\frac{9\,900}{4}$
 $= 2\,475$ shares (8)

4.2 4.2.1 Nominal value of 10,5% stock: $\frac{462}{1} \times \frac{100}{10,5}$
 $= R4\,400$ (5)

4.2.2 Amount invested in stock: $R44 \times 132,50$
 $= R5\,830$ (3)

4.3 4.3.1 % income: $\frac{6}{36} \times \frac{100}{1} = 16\frac{2}{3}\%$ (5)

4.3.2 Dividend : 15 % van 75 = 11,25 cents

Income : $\frac{11,25}{90} \times \frac{100}{1} \%$
 $= 12,5 \%$ (6)

4.3.3 Dividend : 15% of R3
 $= 45$ cents

% income = $\frac{45}{2,25} \times \frac{100}{1} \%$
 $= 20\%$

Investment 4.3.3 is most profitable (8)
[35]

QUESTION 5

5.1 Surface area of sphere

$$4\pi r^2$$

$$= \frac{4}{1} \times \frac{22}{7} \times \frac{7}{1} \times \frac{7}{1}$$

$$= 616 \text{ cm}^2$$

(6)

5.2 Cost of fencing the lawn and path: $(29 + 4 = 33) \times 4 \times 8,95$
= R1 181,40

(6)

5.3 Area of triangle $\frac{1}{2} b \times h$

$$= \frac{2h \times h \times \frac{1}{2}}{h^2}$$

$$= h^2$$

$$h^2 = 144$$

$$h = 12$$

$$\text{Bases of triangle: } 2 \times 12 = 24 \text{ cm}$$

(7)

5.4 Area of circular floor

$$= \pi r^2$$

$$= \frac{22}{7} \times \frac{74}{1} \times \frac{7}{1}$$

$$= 154 \text{ m}^2$$

$$v = \text{Base area} \times \text{height} = 154 \times 5 \text{ m}^3 \\ = 770 \text{ m}^3$$

Capacity of Dam: 770 kl
(1 m³ = 1 000 l or 1 kl)(11)
[30]

QUESTION 6

$$\begin{aligned}
 6.1 \quad SI & : \quad \frac{P \times R \times T}{100} \\
 & = 750 \times 0,18 \times 0,75 \\
 & = R101,25
 \end{aligned}$$

$$\text{Amt owing} \quad R750 + 101,25$$

$$= R851,25 \quad (8)$$

$$\begin{aligned}
 6.2 \quad P & = \frac{100 \times A}{100 + rt} \\
 & = \frac{100 \times 848}{100 + 24 \times (0,25)} \\
 & = \frac{84\,800}{100 + 6} \\
 & = \frac{84\,800}{106} \\
 & = R800
 \end{aligned}$$

(8)

$$\begin{aligned}
 6.3 \quad \text{Amount} & = P \left(1 + \frac{r}{200}\right)^n \\
 & = 9\,000 \left(1 + \frac{13}{100}\right)^6 \\
 & = 9\,000 (1,13)^6 \\
 & = R18\,737,57
 \end{aligned}$$

(6)

$$\begin{aligned}
 6.4 \quad \text{Residual value after 3 years} & = R12\,500 \times 0,67 \times 0,67 \\
 & = R5\,611,25
 \end{aligned}$$

(6)

[30]

QUESTION 7

7.1 $\frac{1}{2} : \frac{1}{4} : \frac{1}{5}$

$$\frac{10}{20} : \frac{5}{20} : \frac{4}{20}$$

Total $10 + 5 + 4 = 19$

A's share $\frac{10}{19} \times 1\,900 = 1\,000$

B's share $\frac{5}{19} \times 1\,900 = 500$

C's share $\frac{4}{19} \times 1\,900 = 4\,000$

(7)

7.2 A invested 10 500 for 12 mths = 126 000 for 1 mth

B invested 4 000 for 3 mths = 12 000

B invested 8 000 for 9 mths = 72 000

= R84 000 for 1 mth

Ratio = A:B = R126 000 : R84 000

= 126 : 84

= 3 : 2

Net Profit 70 000

Less Reserve 9 000

Int on Cap : A

$(0,12 \times 10\,500) = 1\,260$

Int on Cap : B

$(12 \times \frac{1}{4} \times 4\,000) = 120$

$(12 \times \frac{3}{4} \times 8\,000) = 720$ 11 100

Remaining profit 58 900

B's share of remaining profit: $\frac{2}{5} \times 58\,900$

= 23 560

(23)

[30]

QUESTION 8

$$\begin{aligned}
 8.1 \quad \text{Annual instalment} &: \frac{\text{Amt to be redeemed}}{A_{18} \text{ at } 6\%} \\
 &= \frac{400\,000}{10,8276} \\
 &= \text{R}36\,942,63 \qquad (5)
 \end{aligned}$$

$$\begin{aligned}
 8.2 \quad \text{Principal} &= \frac{A}{S_{15} \text{ at } 8\%} \\
 &= \frac{30\,000}{27,1521} \\
 &= \text{R}1\,104,89 \qquad (5)
 \end{aligned}$$

$$\begin{aligned}
 8.3 \quad \text{Amt due at the end of 20 yrs} \\
 &= P(S_{21} - 1) \text{ at } 4\frac{1}{2}\% \\
 &= 10\,000 (33,7831 - 1) \\
 &= 10\,000 (32,7831) \\
 &= \text{R}327\,831 \qquad (8)
 \end{aligned}$$

$$\begin{aligned}
 8.4 \quad \text{Present value of annuity due of R1 000 for 20 years} \\
 &= 1\,000 (a_{19} + 1) \text{ at } 6\% \\
 &= 1\,000 (11,1581 + 1) \\
 &= 1\,000 (12,1581) \\
 &= \text{R}121\,581 \qquad (7)
 \end{aligned}$$

[25]

QUESTION 9

9.1 Payment of goods in British Pounds

$$= \text{£} \quad \frac{8193,78}{13,6563}$$

$$= \text{£}600$$

(7)

9.2 Premium (p) = $\frac{25}{100} \times \frac{70\,000}{100}$

$$= 175$$

Premium payable to cover also premium:

$$\frac{Vp}{V-p}$$

$$= \frac{70\,000 \times 175}{70\,000 - 175}$$

$$= \frac{12\,250\,000}{69\,825}$$

$$= 175,44$$

(9)

9.3 Cost of electricity : $1\,038 \times \frac{23,67}{100}$

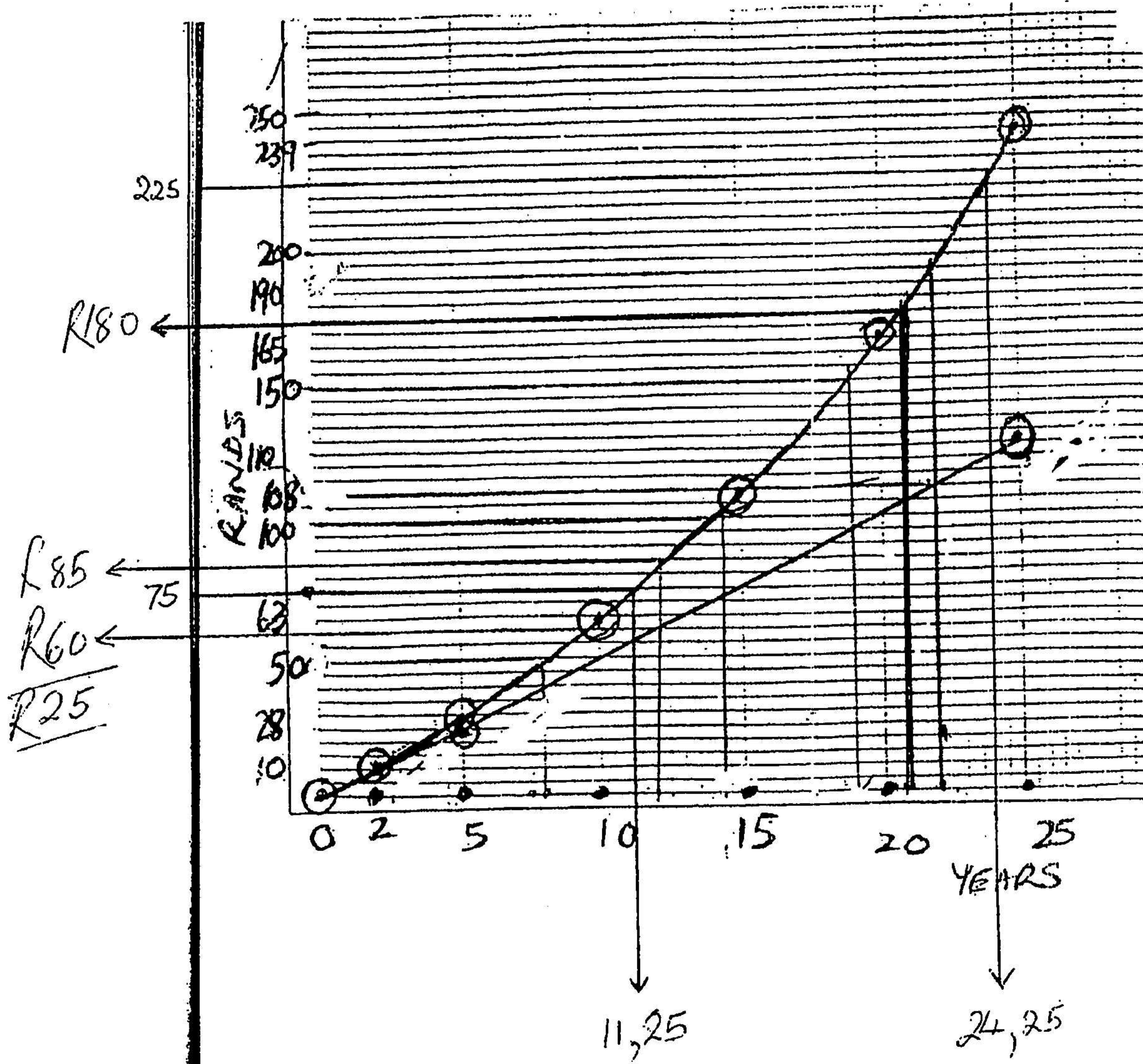
$$= \text{R}245,69$$

Cost of water (55 kl = 6 + 4 + 10 + 20 + 15)

6 kl		Free
4 x 2,15	=	8,60
10 x 3,25	=	R 32,50
20 x 4,48	=	89,60
15 x 5,58	=	83,70
		<u>214,40</u>

(9)
[25]

QUESTION 10



- 10.1.1 Graph (14)
 - 10.1.2 11,25 yrs (4)
 - 10.1.3 24,25 yrs (4)
 - 10.2.1 10, 25, 125 (6)
 - 10.2.2 graph (6)
 - 10.2.3 $R85 - R60 = R25$ (6)
- [40]

END

**GAUTENGSE DEPARTEMENT VAN ONDERWYS
SENIORSERTIFIKAAT- EKSAMEN**

HANDELSWISKUNDE SG

VRAAG 1

1.1.1 Gemiddelde: $840 \div 6$
 $= 140$
 $= 77$ (4)

1.1.2 Modus: 77 (3)

1.1.3 35; 77; 77; 97; 214; 340
 Mediaan $\frac{77 + 97}{2} = \frac{174}{2}$
 $= 87$ (5)

1.2 $\frac{5}{6} \div \left(\frac{2}{27} + \left(\frac{2}{3} \right)^3 \right)$
 $= \frac{5}{6} \div \left(\frac{2}{27} + \frac{8}{27} \right)$
 $= \frac{5}{6} \div \frac{10}{27}$
 $= \frac{9}{4}$
 $= 2 \frac{1}{4}$ (6)

1.3 15 kg suiwer koffie at R35 per kg : $15 \text{ kg} \times 35 = \text{R}525$
 25 kg sigorei at R4,60 per kg : $\text{R}4,60 \times 25 = \text{R}115$
 40 kg van die mengsel kos : $\text{R}525 + 115 = \text{R}640$
 Gem prys van mengsel per kg : $\frac{\text{R}640}{40} = \text{R}16,00$
 \therefore Gem prys van mengsel per 250 g : $\text{R}16 \div 4 = \text{R}4,00$ (7)

[25]

VRAAG 2

- 2.1 Krediteur se eis:
 $R14\ 000 \div 33\frac{1}{3} \times 100$
 $= 14\ 000 \div \frac{1}{3}$
 $= 14\ 000 \times 3$
 $= R42\ 000$ (6)
- 2.2 Realisering van Bates: $9\ 240 + 150\ 000 + (8 \times 7\ 200 = 5\ 760 = R165\ 000$
 Minus voorkeureise $150\ 000 + 4\ 400 = 154\ 400$
 Bedrag besk. aan kred. $165\ 000 - 154\ 400 = 106\ 000$
 Totale krediteurseise $11\ 200 + 10\ 000 = 21\ 200$
- Finale dividend uitbetaal $\frac{10\ 600}{21\ 200} \times \frac{100}{1}$
 $= 50\ c\ in\ die\ Rand$ (19)
[25]

VRAAG 3

3.1 Wins op artikel verkoop

$$450 \times \frac{25}{75}$$

$$= 150$$

(7)

3.2

MP	KP	Aanvaar KP is	R100
130	100	∴ Markprys	R130

	MP	VP	KP	Wins / Verlies
			100	
Uitverkop.	780	700	X	

$$\text{KP vir 780 MP : } \frac{R780 \times 100}{130}$$

$$= R600$$

daarom is wins teen VP van R700 = R100

$$\text{Wins \% op 780 KP: } \frac{100}{600} \times \frac{100}{1}$$

$$= 16\frac{2}{3} \%$$

(14)

3.3 3.3.1 VP KP WINS

125	100	25
560	X	

$$\text{Kosprys van die handelaar: } \frac{R280 \times 100}{125}$$

$$= R448$$

(7)

3.3.2 Die KP van die handelaar is die VP van die groothandelaar

VP	KP	WINS
----	----	------

100	88	12
448	X	

$$\text{Kosprys van die groothandelaar: } \frac{R448 \times 88}{100}$$

$$= R394,24$$

(7)

[35]

VRAAG 4

$$4.1 \quad \text{Wins uit 9\% effekte: } \frac{9\,000}{100} \times 110$$

$$= R9\,900$$

$$\text{Getal aandele gekoop: } \frac{9\,900}{4}$$

$$= 2\,475 \text{ aandele} \quad (8)$$

$$4.2 \quad 4.2.1 \quad \text{Nominale waarde van 10,5\% effekte: } \frac{462}{1} \times \frac{100}{10,5}$$

$$= R4\,400 \quad (5)$$

$$4.2.2 \quad \text{Bedrag belê in die effekte: } R44 \times 132,50$$

$$= R5\,830 \quad (3)$$

$$4.3 \quad 4.3.1 \quad \% \text{ inkomste: } \frac{6}{36} \times \frac{100}{1} = 16\frac{2}{3} \% \quad (5)$$

$$4.3.2 \quad \text{Dividend} \quad : \quad 15\% \text{ van } 75 = 11,25 \text{ sent}$$

$$\text{Inkomste} \quad : \quad \frac{11,25}{90} \times \frac{100}{1} \%$$

$$= 12,5 \% \quad (6)$$

$$4.3.3 \quad \text{Dividend} \quad : 15\% \text{ van } R3$$

$$= 45 \text{ sent}$$

$$\% \text{ inkomste} = \frac{45}{2,25} \times \frac{100}{1} \%$$

$$= 20\%$$

Belegging 4.3.3 is die winsgewendste.

(8)
[35]

VRAAG 5

5.1 Oppervlakte van sfeer

$$4\pi r^2$$

$$= \frac{4}{1} \times \frac{22}{7} \times \frac{7}{1} \times \frac{7}{1}$$

$$= 616 \text{ cm}^2$$

(6)

5.2 Koste om grasperk en paadjie te omhein: $(29 + 4 = 33) \times 4 \times 8,95$
 $= \text{R}1\ 181,40$

(6)

5.3 Oppervlakte van driehoek $\frac{1}{2} b \times h$

$$= \frac{2h \times h \times \frac{1}{2}}{h^2}$$

$$h^2 = 144$$

$$h = 12$$

$$\text{Basis van driehoek: } 2 \times 12 = 24 \text{ cm}$$

(7)

5.4 Oppervlakte van sirkelvormige vloer

$$= \pi r^2$$

$$= \frac{22}{7} \times \frac{74}{1} \times \frac{7}{1}$$

$$= 154 \text{ m}^2$$

$$v = \text{basisoppervlakte} \times \text{hoogte} = 154 \times 5 \text{ m}^3$$

$$= 770 \text{ m}^3$$

Kapasiteit van dam: 770 kl
 (1 m³ = 1 000 l or 1 kl)

(11)
[30]

VRAAG 6

$$\begin{aligned}
 6.1 \quad SI & : \frac{P \times R \times T}{100} \\
 & = 750 \times 0,18 \times 0,75 \\
 & = R101,25
 \end{aligned}$$

$$\text{Bedr uitst} \quad R750 + 101,25$$

$$= R851,25 \quad (8)$$

$$\begin{aligned}
 6.2 \quad p & = \frac{100 \times A}{100 + rt} \\
 & = \frac{100 \times 848}{100 + 24 \times (0,25)} \\
 & = \frac{84\,800}{100 + 6} \\
 & = \frac{84\,800}{106} \\
 & = R800
 \end{aligned}$$

(8)

$$\begin{aligned}
 6.3 \quad \text{Bedrag} & = P \left(1 + \frac{r}{200}\right)^n \\
 & = 9\,000 \left(1 + \frac{13}{100}\right)^6 \\
 & = 9\,000 (1,13)^6 \\
 & = R18\,737,57
 \end{aligned}$$

(6)

$$\begin{aligned}
 6.4 \quad \text{Reswaarde na 3 jaar} & = R12\,500 \times 0,67 \times 0,67 \\
 & = R5\,611,25
 \end{aligned}$$

(6)
[30]

VRAAG 7

7.1 $\frac{1}{2} : \frac{1}{4} : \frac{1}{5}$

$$\frac{10}{20} : \frac{5}{20} : \frac{4}{20}$$

Totale $10 + 5 + 4 = 19$

A se aandeel $\frac{10}{19} \times 1\,900 = 1\,000$

B se aandeel $\frac{5}{19} \times 1\,900 = 500$

C se aandeel $\frac{4}{19} \times 1\,900 = 4\,000$

(7)

7.2 A belê 10 500 vir 12 maande = 126 000 vir 1 maand

B belê 4 000 vir 3 maande = 12 000

B belê 8 000 vir 9 maande = 72 000

= R84 000 vir 1 maand

Verhouding = A:B = R126 000 : R84 000

= 126 : 84

= 3 : 2

Netto wins 70 000

Minus Reserwe 9 000

Rente op Kap : A

$(0,12 \times 10\,500) = 1\,260$

Rente op Kap : B

$(12 \times \frac{1}{4} \times 4\,000) = 120$

$(12 \times \frac{3}{4} \times 8\,000) = 720$ 11 100

Oorblywende wins 58 900

B se deel van oorbl. wins : $\frac{2}{5} \times 58\,900$

= 23 560

(23)
[30]

VRAAG 8

$$\begin{aligned}
 8.1 \quad \text{Jaarlikse belegging} &: \frac{\text{Bedrag wat afgelos moet word}}{A_{18} \text{ teen } 6\%} \\
 &= \frac{400\,000}{10,8276} \\
 &= R36\,942,63 \qquad (5)
 \end{aligned}$$

$$\begin{aligned}
 8.2 \quad \text{Hoofsom} &= \frac{A}{S_{15} \text{ teen } 8\%} \\
 &= \frac{30\,000}{27,1521} \\
 &= R1\,104,89 \qquad (5)
 \end{aligned}$$

$$\begin{aligned}
 8.3 \quad \text{Bedrag betaalbaar aan die einde van 20 jaar} \\
 &= P(S_{21} - 1) \text{ teen } 4\frac{1}{2}\% \\
 &= 10\,000 (33,7831 - 1) \\
 &= 10\,000 (32,7831) \\
 &= R327\,831 \qquad (8)
 \end{aligned}$$

$$\begin{aligned}
 8.4 \quad \text{Huidige waarde van annuïteit betaalbaar van R1\,000 vir 20 jaar} \\
 &= 1\,000 (a_{19} + 1) \text{ teen } 6\% \\
 &= 1\,000 (11,1581 + 1) \\
 &= 1\,000 (12,1581) \\
 &= R121\,581 \qquad (7)
 \end{aligned}$$

[25]

VRAAG 9

9.1 Betaling vir goedere in Britse pond

$$= \text{£} \quad \frac{8193,78}{13,6563}$$

$$= \text{£}600$$

(7)

9.2 Premie (p) = $\frac{25}{100} \times \frac{70\,000}{100}$

$$= 175$$

Premie betaalbaar om premie ook te dek: $\frac{Vp}{V-p}$

$$= \frac{70\,000 \times 175}{70\,000 - 175}$$

$$= \frac{12\,250\,000}{69\,825}$$

$$= 175,44$$

(9)

9.3 Koste van elektrisiteit : $10\,38 \times \frac{23,67}{100}$

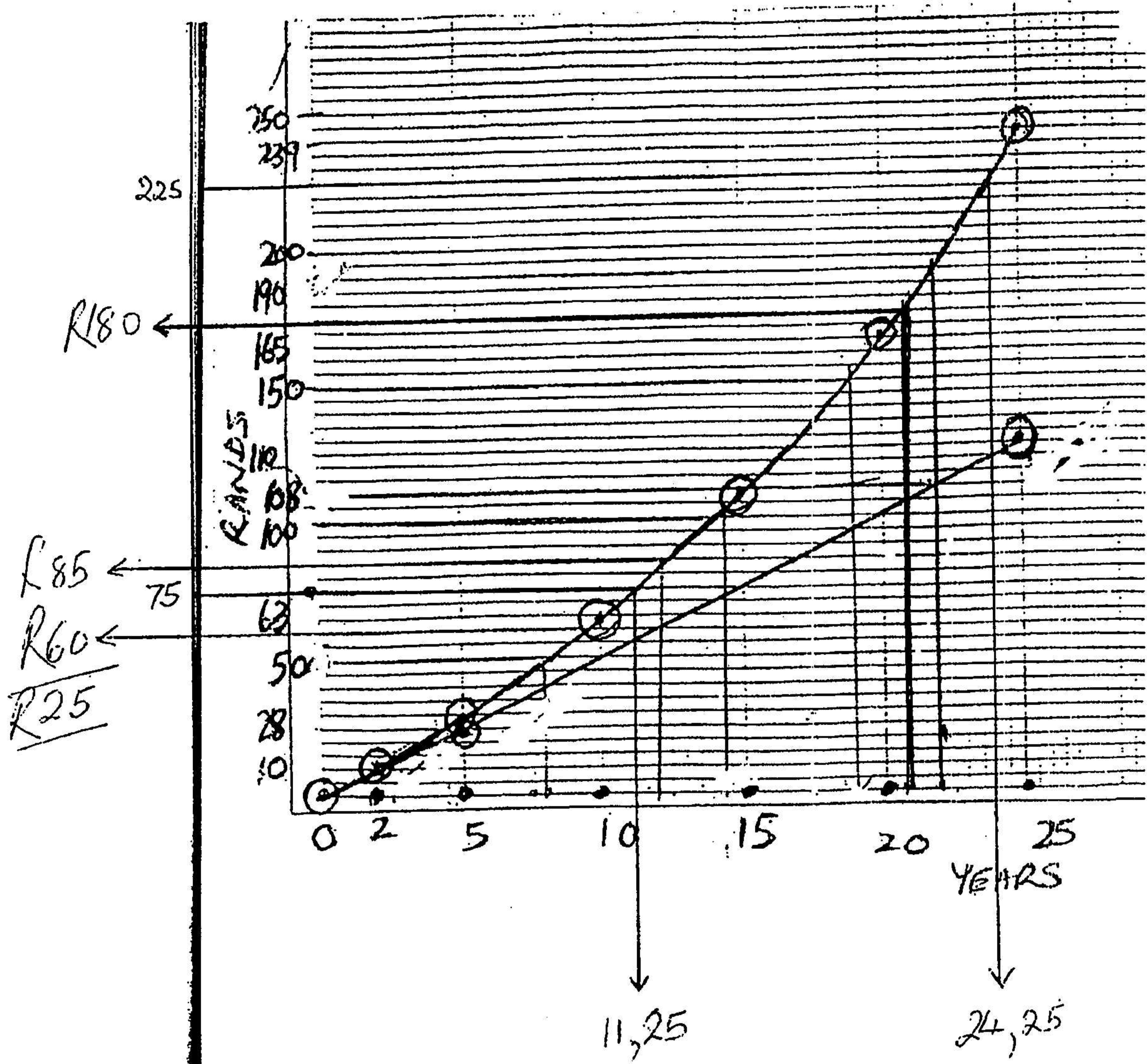
$$= \text{R}245,69$$

Koste van water (55 kl = 6 + 4 + 10 + 20 + 15)

6 kl		Gratis
4 x 2,15	=	8,60
10 x 3,25	=	R 32,50
20 x 4,48	=	89,60
15 x 5,58	=	83,70
		<u>214,40</u>

(9)
[25]

VRAAG 10



- 10.1.1 Grafiek (14)
 - 10.1.2 11,25 jaar (4)
 - 10.1.3 24,25 jaar (4)
 - 10.2.1 10, 25, 125 (6)
 - 10.2.2 grafiek (6)
 - 10.2.3 $R85 - R60 = R25$ (6)
- [40]