Option 1 (7 marks)

	Amount at start of year	Value of Scholarships	Amount remaining at end of year
2017	20,000	—	20,000
2018	20,000	3000	17,000
2019	17,000	3000	14,000
2020	14,000	3000	11,000
2021	11,000	3000	8000
2022	8000	3000	5000
2023	5000	3000	2000
2024	2000	2000	0
	✓	✓	✓

-1 if start in 2017.

Complete the table above for Option 1.

How long will the trust fund last for this option?

Will last until 2024 with all 6 scholarships awarded up to 2023 with only 4 in the last year

or

8 years. First year no scholarships then 6 years with all 6 and only 4 in the last year

years ✓

explanation ✓

How many scholarships can be awarded in this time?

$6 \times 6 + 4 = 40$ scholarships ✓ ✓

Option 2 (11 marks)

	Amount at start of year	Interest	Interest + principal	Value of Scholarships	Amount remaining at end of year
2017	20,000	1200	21200	3000	18200
2018	18 200	1092	19,292	3000	16 292
2019	16 292	977.52	17,269.52	3000	14269.52
2020	14269.52	856.17	15,125.69	3000	12125.69
2021	12125.69	727.54	12853.23	3000	9853.23
2022	9853.23	591.19	10,444.43	3000	7444.43
2023	7444.43	446.67	7891.09	3000	4891.09
2024	4891.09	293.47	5184.56	3000	2184.56
2025	2184.56	131.07	2315.63	2000	315.63

Show your calculations for the first row in the table above and then complete the table. $20,000 \times 0.06 = 1200$ ✓ $20,000 + 1200 = 21200$

$21200 - 3000 = 18,200$ ✓

How long does the trust fund last?

9 years (2025) First 8 years allow 6 scholarships a year with 4 awarded in the 9th (2025)

Explanation ✓

How many scholarships can be awarded in this time?

$6 \times 8 + 4 = 52$ ✓ ✓

Option 3 (This table shows how much is left in the trust fund after 5 years) (9 marks)

		Amount at start of year	Interest	Interest + principal	Value of Scholarships	Amount remaining at end of year
2022	9	11806.17	324.67	12130.84		12130.84
	10	12130.84	333.60	12464.44	3000	9464.44
2023	11	9464.44	260.27	9724.71		9724.71
	12	9724.71	267.43	9992.14	3000	6992.14 ✓
2024	13	6992.14	192.28	7184.43		7184.43
	14	7184.43	197.57	7382.00	3000	4382
2025	15	4382	120.50	4502.50		4502.50
	16	4502.50	123.82	4626.32	3000	1626.32
2026	17	1626.32	44.72	1671.05		1671.05
	18	1671.05	45.95	1717	1500 ✓FT	217 ✓FT

Show how Line 10 of this table has been calculated and complete the table for this option. $12130.84 \times 0.0275 = 333.60$ ✓

$12130.84 + 333.6 = 12464.44$

$12464.44 - 3000 = 9464.44$ ✓

How long does the trust fund last?

10 years ✓ 9 full years (6 scholarships) with 3 given out in the 10th

Explanation ✓

How many scholarships can be awarded in this time?

$9 \times 6 + 3$ ✓ $= 57$ ✓ F.T from table.

PART B (6 marks)

Consider how many scholarships could be awarded and the 'life' of the trust fund.

What do you think would happen with each option if the only change was:

a) the scholarship value for **Option 1** was increased by $100 each year?

Will last less time as scholarships now cost $3600 a year

b) the interest rate in **Option 2** was increased to 7% p.a.?

May mean more scholarships could be given as more interest will be accumulated

c) the compounding period in **Option 3** was changed to 'compounding monthly'?

Would make more money, which could lead to more scholarships given.

END OF APPLICATION