Multiple-choice section

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Answer | C | A | C | B | D | A | B | C | D |

Question 1 [13.2]

C

A = P(1 + r)n

= 5700(1 + 0.06)2

= 6405

I = A – P

= 6405 – 5700

= $705

Question 2 [13.4]

A

Depreciation  
A = P(1 + r)n

= $23 400(0.85)5

Question 3 [13.1]

C

I = PrT

= 400 × 0.032 × 5

= $64

Question 4 [13.4]

B

P = ?, T = 4 years, I = $12.50

I = PrT

12.50 = P × 0.025 × 4

12.50 = 0.1× P

P =  = $125

Question 5 [13.3]

D

r = 6.4% = 0.064

A = P(1 + r)*n*

A = 10 000(1 + 0.064)10

A = $18 595.86

Question 6 [13.6]

A

P = principal amount = $35 000

n = number of compounding periods

= 2 × 15 = 30

r = 

= 0.0275

A = P(1 + r)*n*

A = 35 000(1 + 0.0275)30

A = 35 000 × 1.027530

A = $78 981.06

Question 7 [13.3]

B

A = P(1 + r)*n*

$75 350 = 30 000(1 + r)11

 = (1 + r)11

1 + r = 

1 + r = 1.0873

r = 0.0873

r = 8.73%

Question 8 [13.4]

C

r*ef* = ?, I*1* = 450, P = 7000

r*ef* =  × 100

r*ef* =  × 100

r*ef* = 0.0643 × 100

r*ef* = 6.4%

Question 9 [13.4]

D

The nominal rate is the stated rate, 17%

Multiple-choice results: 9

Short answer section

Question 10 10 marks

(a) Simple interest depends on the principal, interest rate per annum and the time in years.

(b) The original amount of money loaned or invested is called the principal.

(c) Interest that is calculated on the principal and interest from a previous time period is called compound interest.

(d) The value of an item after it depreciates is called the written-down value or the adjusted value.

(e) The amount that an item depreciates is called the depreciation value. Depreciation over a number of years is called total depreciation.

(f) Increase in cost or value is called appreciation and decrease in cost or value is called depreciation.

(g) Straight-line depreciation applies when items lose a constant amount of value each year.

Question 11 4 marks [13.1]

I = A – P

= 7140 – 6000

= $1140

I = 

1140 = 

R = 

r = 3.8%

Question 12 4 marks [13.2]

A = P(1 + r)*n*

= 3000(1 + 0.062)5

= 4052.6942…

The total value of the loan is $4052.69

Question 13 4 marks [13.2]

r = 

= 0.0051666…. (use the exact value or use the memory of the calculator)

n = 10 × 12

= 120

A = P(1 + r)*n*

= 550 00(1 + 0.00516...)120

= 102 077.9783

The value of the loan is $102 078

Question 14 4 marks [13.6]

r = ?

n = 10

A = P(1 + r)*n*

524 000 = 930 000(1 + r)10

 = (1 + r)10

= (1 + r)

1.05904… = 1 + r

r = 0.059 04…

The average annual increase is 5.9%

Question 15 4 marks [13.3]

n = 12

r = 15% = 0.15



The effective interest rate is 16.08%.

Question 16 4 marks [13.6]



The number of members after 5 years is 9156.

Question 17 4 marks [13.3]

P = 28 500, r = 2.9% = 0.029, n = 4

V*T* = P(1 – r)*T*

= 28 500(1 – 0.029)4

= 25 335.050

The value of the car is $25 335.

Short answer total: 38

Extended answer section

Question 18 5 marks [13.3]

(a) A = 800(1.03)4= $900.00

(b) Effective profit = $1000 – $900  
= $100

Question 19 8 marks [13.3]

(a) Initial costs  
= 2400 + 1800  
= $4200

(b) Value after 1 year = $4200 × 1.018 = $4275.60Value after 2 years = $4275.60 × 1.022 = $4369.66Value after 3 years = $4369.66 × 1.025 = $4478.90Value after 4 years = $4478.90 × 1.028 = $4604.31Value after 5 years = $4604.31 × 1.03 = $4742.44

(c) Effective profit  
= 5500 – 4742.44  
= $757.56

(d) Effective percentage return  
=  × 100%  
= 18.0371…  
The effective profit is 18.04%

Extended answer results: 13

TOTAL test results: 60