Multiple-choice section

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

Question 1 [4.1]

C

*P* = 2*l* + 2*w*

= 2 × 10 + 2 × 4

= 28 m

Question 2 [4.1]

A

arc length = × 2πr

=× 2 × π × 4

=× 8 × π

= π

= 3.14 cm

Question 3 [4.1]

C

*P* = (4 + 6) × 2

= 20 cm

Question 4 [4.2]

D

200 mm2 = 200 ÷ 100 cm2 = 2 cm2

Question 5 [4.2]

A

*A* = *l*2

= 42

= 16 cm2

Question 6 [4.2]

B

*A* = *lw* + *bh*

= (10 × 4) + (× 10 × 2) m2

Question 7 [4.4]

A

*V* = *AH*

= *lwH*

= 3 × 4 × 9

= 108 cm3

Question 8 [4.4]

D

1 m3 = 1 × (100)3 cm3

= 1 000 000 cm3

Multiple-choice total marks: 8

Short answer section

Question 9 4 marks [4.1]

(a) *P* = 4 + 2 + 1 + 3 + 1 + 3 + 2 + 2

*P* = 18 cm

**(b)** 

Question 10 4 marks [4.1]

*P* =  × 2 × π × 15 + 2 × 15

*P* = 100.69 cm

*A* =  × π × 152

*A* = 530.14 cm2

Question 11 2 marks [4.1]

(a) *P* = 2 × (68 + 25)

*P* = 186 m

**(b)** total = 5 × 186 m

total = 930 m = 0.93 km

Question 12 4 marks [4.2]

(a) 10 × 102 = 1000 mm2

(b) 3 m2 × 1002 = 30 000 cm2

(c) 50 000 cm2 ÷ 1002 = 5 m2

(d) 0.5 km × 10002 = 500 000 m2

Question 13 6 marks [4.2]

(a) *A* = *lw* – (*a* + *b*) × *h*

*A* = 8 × 6 – × (4 + 8) × 4

*A* = 24 m2

(b) *A* = *bh* +π*r*2

*A* = × 3 × 4 +× π × 32

*A* = 13.07 m2

Question 14 4 marks [4.3]

(a) SA = 2*lw* × 2*lh* × 2*wh*

= (2 × 2 × 1) + (2 × 8 × 2) + (2 × 1 × 8)

= 4 + 32 + 16

= 52 cm2

(b) SA = 2π*r*2 × 2π*rh*

= 2 × π × 22 + 2 × π × 2 × 5

= 87.96 cm2

Question 15 6 marks [4.4]

(i) (a) *A* = *bh*

*A* = × 3 × 4

*A* = 6 cm2

(b) *V* = *AH*

*V* = 6 × 12

*V* = 72 cm3

(c) *V* = 72 ÷ 1000 = 0.072 L

(ii) (a) *A* = π*r*2

*A* = π × 3.52

*A* = 38.48 cm2

(b) *V* = *AH*

*V* = 38.4845 × 12

*V* = 461.81 cm3

**(c)** *V* = 461.81 ÷ 1000 = 0.46 L

Short answer total marks: 30

Extended answer section

Question 16 2 + 2 + 2 + 2 marks [4.1, 4.2, 4.4]

(a) *P* = × 2 × π × 1 + 5 + 2 + 1.5 × 3 + 3.5

*P* = 18.14 m

(b) *A* =  × π × 12 + 5 × 2+ 1.52

*A* = 13.82 m2

(c) cost = 45 × 13.82

cost = $622

(d) volume = *AH*

volume = 13.82 × 1.2

volume = 16.584 m3

number of litres = 16.6 kL

Question 17 2 + 1 + 2 + 1 + 1 marks [4.3, 4.4]

(a) *V* = *AH*

= π*r*2*H*

= π × 1.152 × 8.5

= 35.315 m3

(b) 35.315 m3 = 35.315 × 1000 L = 35 315 L

(c) Volume of the smaller tank:

*V* = *AH*

= *lwH*

= 90 × 85 × 120

= 918 000 cm3

(d) 918 000 cm3 = 918 000 ÷ 1000 L = 918 L

**(e)**  = 38.5

Nearly 39 of the smaller tanks can be filled from one large tank truckload.

Extended answer total marks: 15

TOTAL test marks: 53