YEAR 2002 WORKING AND ANSWERS

SECTION A

1	$= \frac{2}{10} \times 10,000$ $= 2,000m^2$	2	2,000 - Two thousand + 41 - forty one 2,041 - Two thousand, forty one	3	$2.5km = \frac{25}{10} \times 10,000 = 25,000dm$ $25,000dm = 25,000dm$
4	$= \frac{2}{8} \times \frac{488}{1000}$ $= \frac{122}{1000}$ $= 0.122$	5	$5\ US\$ = 2,250F$ $1\ US\$ = \left(\frac{2,250}{5}\right)F$ $500US\$ = \left(\frac{2,250 \times 500}{5}\right)F$ $= 225,000Frw$	6	$2\ eggs\ in\ 2litres = 5min$ $1\ egg\ in\ 2\ litres = 5min$ $3\ eggs\ in\ 2\ litre = 5min$ $(Constant\ proportion)$
7	$F_9 = 1,3,9\ (3\ factors)$ $F_{15} = 1,3,5,15(4\ factors)$ $9\ and\ 15\ are\ not\ prime\ numbers$	8	$21 = 10 + 10 + 1$ $= X + X + I$ $= XXI$	9	$= \frac{135}{10,000} \times \frac{3}{100}$ $= \frac{405}{1,000,000}$ $= 0.000405$
10	$3x - 3 = x + 9$ $3x - x = 9 + 3$ $2x = 12$ $\frac{2x}{2} = \frac{12}{2}$ $x = 6$	11	$100B + 90P = 12,200$ $Substitute(B = 50)$ $(100 \times 50) + 90P = 12,200$ $5,000 + 90P = 12,200$ $90P = 12,200 - 5,000$ $90P = 7,200$ $\frac{90P}{90} = \frac{7,200}{90}$ $P = 80$ $Therefore\ peas\ cost\ 80Frw/kg$	12	$1^{st} = x + 2,\ \ 2^{nd}no = x + 4$ $2x + 6 = 18$ $2x = 18 - 6$ $\frac{2x}{2} = \frac{12}{2}$ $x = 6$ $1^{st} = 6 + 2 = 8 \quad 2^{nd} = 6 + 4 = 10$ $Product = 1^{st}no \times 2^{nd}no$ $= 8 \times 10$ $= 80$
13	2 4 5 8 x 5 y 26 65 101 $x^2 + 1 = yx^2 + 1 = y$ $4 \times 4 + 1 = y\ x^2 + 1 = 101$ $16 + 1 = y \quad x^2 = 101 - 1$ $17 = y\ x^2 = 100$ $\sqrt{x^2} = \sqrt{100}$ $x = 10$	14	$= \frac{9 + 12}{7}$ $= \frac{21}{7}$ $= 3$	15	$Let\ the\ original\ number\ be\ x$ $= 100\% + 8\%$ $= 108\%$ $\frac{108}{100} \times x = 1,296$ $x = \frac{1,296 \times 100}{108}$ $x = 1,200$ $The\ original\ number\ is\ 1,200$
16	$P = SP - CP$ $= 90,000F - 75,000F$ $= 15,000F$ $\%P = \frac{P \times 100}{CP}$ $= \frac{15,000 \times 100}{75,000}$ $= 20\%$	17	$\left(\frac{6}{12} = \frac{1}{2}\right)\ LCD = 10$ $\frac{7}{10} \times 10 = 7 \ldots\ldots\ldots (iii)$ $\frac{1}{2} \times 10 = 5 \ldots\ldots\ldots (i)$ $\frac{3}{5} \times 10 = 6 \ldots\ldots\ldots (ii)$ $= \frac{6}{12}, \frac{3}{5}, \frac{7}{10}$	18	$3\ men = 10\ days$ $1\ man = (10 \times 3)days$ $5\ men = \left(\frac{10 \times 3}{5}\right)days$ $= 6\ days$
19	Hint: We can use proportions $1\frac{1}{4}hr = \frac{5}{4} \times 60 = 75min$ $30\ min = 40km$ $1\ min = \left(\frac{40}{30}\right)km$ $75min = \left(\frac{40 \times 75}{30}\right)km$ $= 100km$	20	$T = \frac{I \times 100}{P \times R}$ $= \frac{4,500 \times 100}{30,000 \times 5}$ $= 3\ years$	21	$Ratio = 1500 : 6000 : 2000$ Hint: Reduce all using HCD of 500 $= \frac{1500}{500} : \frac{6000}{500} : \frac{2000}{500}$ $= 3 : 12 : 4$
22	$= (24 \times 1000) + 200 + (150 \div 1000)$ $= 24,000g + 200g + 0.15g$ $= 24,200.15g$	23	$Minute\ hand \quad Second\ hand$ $1\ min = 1\ rev\ (60sec)$ $1rev(60min) = 60\ rev$ $2\ rev = (60 \times 2)rev$ $= 120\ rev$	24	$= \left(\frac{5}{2} \div \frac{7}{9}\right) \times \frac{1}{12}$ $= \frac{5}{2} \times \frac{9}{7} \times \frac{1}{12} = \frac{15}{56}$
25	$RD = \frac{Demsity\ of\ aluminium}{Density\ of\ water}$ $= \frac{2700kg/m^3}{1000kg/m^3}$ $= 2.7$	26	$= (12 - 3) \div 2 = 9 \div 2 = 4.5cm$ $P = 12 + 2 + 4.5 + 6 + 3 + 6 + 4.5 + 2$ $= 40cm$ $A = (L \times W) + (L \times W)$ $= (12 \times 2)cm^2 + (6 \times 3)cm^2$ $= 24cm^2 + 18cm^2 = 42cm^2$	27	$y = 60^o(opposite\ angles)$ $x = 180^o - 120^o(straight\ line)$ $= 60^o$ $z = 180^o - (y + x)(triangle)$ $= 180^o - 120^o$ $= 60^o$

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$A = Area\ of\ (Square - Circle)$

$(D = 20cm, r = 20 \div 2 = 10cm)$

$= (S \times S) - (\pi r^2)$

$= (20 \times 20) - (3.14 \times 10 \times 10)$

$= 400cm^2 - 314cm^2$

$= 86cm^2$

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$V = S \times S \times S$

$= 20cm \times 20cm \times 20cm$

$= 8,000cm^3$

$Change\ 8,000cm^3\ to\ litres$

$= \frac{8,000}{1,000}$

$= 8\ litres$

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Age	Frequency
11	4
12	3
13	2
14	1

$Mode = 11$

$Av = \frac{(11 \times 4) + (12 \times 3) + (13 \times 2) + (14 \times 1)}{4 + 3 + 2 + 1}$

$= \frac{44 + 36 + 26 + 14}{10} = \frac{120}{10} = 12$

SECTION B

31

Part (a)

$Salary = \frac{1,000 \times 360}{4}$

$= 90,000F$

Part (b)

$Each\ degree = \frac{salary}{360} = \frac{90,000}{360} = 250F$

$Food = 120 \times 250 = 30,000F$

$Rent = 150 \times 250 = 37,500F$

$Med. = 25 \times 250 = 6,250F$

$Cig. = 5 \times 250 = 1,250F$

$Trans = 32 \times 250 = 8,000F$

$Tel. = 24 \times 250 = 6,000F$

32

Part (a)

$TSA = 2(LW + WH + LH)$

$= 2(20 \times 5 + 5 \times 10 + 10 \times 20)cm^2$

$= 2(100 + 50 + 200)cm^2$

$= 2 \times 350cm^2$

$= 700cm^2$

$V = L \times W \times H$

$= 20cm \times 5cm \times 10cm$

$= 1000cm^3$

Part (b)

$S = \sqrt[3]{1000cm^3} = 10cm$

Part (c)

$TSA = 6 \times S \times S$

$= 6 \times 10cm \times 10cm$

$= 600cm^2$

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Part (a)

$Ext = 180^o - Int$

$= 180^o - 150^o$

$= 30^o$

Part (b)

$n = \frac{360^o}{Ext}$

$= \frac{360^o}{30^o}$

$= 12\ sides$

Part (c)

$P = 84cm$

$12S = 84cm$

$\frac{12S}{12} = \frac{84cm}{12}$

$S = 7cm$

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Part (a)

$A = 7.065m^2$

$\pi r^2 = 7.065m^2$

$r^2 = \frac{7.065m^2}{3.14}$

$r^2 = \sqrt{2.25m^2}$

$r = 1.5m$

Part (b)

$h = \frac{vol}{\pi r^2} = \frac{14,130dm^3}{7.065m^2}$

$= \frac{14,130dm^3}{(7.065 \times 100)dm^2} = \frac{14,130dm^3}{106.5dm^2}$

$= \frac{14,130 \times 10}{106.5 \times 10} = \frac{141,300dm^3}{7,065dm^2}$

$= 20dm$

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$(a)(i). Girls + Boys = 300$

$x + 2x = 300$

$\frac{3x}{3} = \frac{300}{3}$

$x = 100$

$Boys = 2 \times 100 = 200\ boys$

$(ii). Girls = x = 100\ girls$

$(b). = \frac{16}{100} \times 100 = 32\ boys$

$(c). = \frac{1}{5} \times 100 = 20\ girls$

$(d). = \frac{20}{300} \times 100 = 6\frac{2}{3}\%$

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Part (a)

$CSA = \pi rl$

$= 3.14 \times 6cm \times 10cm$

$= 188.4cm^2$

Part (b)

$V = \frac{1}{3}\pi r^2 h$

$= \frac{1}{3} \times 3.14 \times 6cm \times 6cm \times 8cm$

$= 301.44cm^3$

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$(a). 10sq. = 60min(1hr)$

$1sq = \frac{60min}{10}$

$= 6\ min$

$(b). 5sq = 20km$

$1sq = \frac{20km}{5}$

$= 4\ km$

$(c). = (10 \times 4) = 40km$

$(d). At\ 9:00am$

$(e). = (10 \times 6) = 60min = 1\ hour$

$(f). AS = \frac{Total\ Distance}{Total\ time\ taken} = \frac{80km + 40km}{1hr + 1hr + 2hr} = \frac{120km}{4hr} = 30km/hr$