Q1.

1 (a) $\text{Mg}^{2+} + 2e^- \rightarrow \text{Mg}$

(b) chlorine/Cl$_2$

(c) smaller $A_v$
larger (atomic/ionic) radius/size

(d) (i) the energy change when 1 mol of solid compound
is formed from its gaseous ions

(ii) $\text{Mg}^{2+} (g) + 2\text{Cl}^- (g) \rightarrow \text{MgCl}_2 (s)$

(e) (i) LE (MgCl$_2$) is greater than LE (NaCl)
(because) $\text{Mg}^{2+}$ has higher charge / smaller radius than Na$^+$

(ii) LE (MgCl$_2$) is greater than LE (CaCl$_2$)
(because) $\text{Mg}^{2+}$ is smaller than Ca$^{2+}$

(f) LE = 349 – 122 – 494 – 107 – 411

= -785 (kJ mol$^{-1}$)

*correct answer = [3], with – [1] for one error. OR mark as follows: use of all 5 $\Delta H$ values, with x1 multipliers [1]*
*correct signs for all $\Delta H$ values [1]*
*negative sign in answer [1]*

Total = [15]

Q2.
3. (a) (i) It is an endothermic reaction, or taking in heat
It has a high activation energy/Eₐ

(ii) MgCO₃ will decompose at a lower temperature/needs less energy
Mg²⁺ is a smaller (ion) than Ca²⁺ or Mg²⁺ has high charge density
So polarises/distorts the anion CO₃²⁻ ion more easily
(or LE(MgO) > LE(CaO))

(b) \[ \Delta H = 82 - 178 = -96 \text{ (kJ mol}^{-1}\text{)} \]

Part (b): [1]

(c) \[ \text{CaMg(CO}_3\text{)}_2 \rightarrow \text{CaO} + \text{MgO} + 2\text{CO}_2 \]
\[ M(\text{CaMg(CO}_3\text{)}_2) = 40.1 + 24.3 + 24 + 96 = 184.4 \]
\[ M(2\text{CO}_2) = 2 \times 44 = 88 \]
\[ \therefore \text{% loss in mass} = 100 \times \frac{88}{184.4} = 47.7\% \quad \text{(e.c.f. in 184.4)} \]
Allow 48%. Also allow 48.8% if \( M_b = 184 \)

Part (c): [2]

Total: [8]

Q3.

(c)  

\[
\text{LE} = B - A \\
= -415 - (131 + 908 + 1730) - (244 + 2(-349)) \\
= -415 - 3138 \\
= -2730 \text{ (kJ mol}^{-1}\text{)}
\]

(correct answer = [3]; deduct [1] for each error) [3]

Q4.
2 (a) less soluble down group
   lattice energy and hydration energies both decrease (i.e. become less negative)
   but H.E. decreases more (than L.E.) or change in H.E. outweighs L.E.
   so \[ \Delta H_{\text{rxn}} \] becomes more endothermic / less exothermic

(b) (i) for Mg: \[ \Delta H = 2993 - 1890 - (2 \times 550) = (+)3 \text{ (kJ mol}^{-1}\text{)} \]
   for Sr: \[ \Delta H = 2467 - 1414 - (2 \times 550) = -47 \text{ (kJ mol}^{-1}\text{)} \]
(ii) Sr(OH)\(_2\) should be more soluble in water, and \[ \Delta H \] is more exothermic / negative
    Assuming “other factors” (e.g. \( \Delta S \), or temperature etc.) are the same
(iii) Sr(OH)\(_2\) should be less soluble in hot water, because \( \Delta H \) is negative / exothermic

(c) (i) \[ K_{\text{sp}} = [\text{Ca}^{2+}][\text{OH}^-]^2 \] (needs the charges) units: mol\(^3\)dm\(^{-9}\) (1) + (1)
(ii) \( n(\text{H}^+) = n(\text{OH}^-) = 0.05 \times 21/1000 = 1.05 \times 10^{-3} \text{ mol in 25 cm}^3 \)
   \[ [\text{OH}^-] = 1.05 \times 1000/25 = 4.2 \times 10^{-2} \text{ (mol dm}^{-3}\text{)} \]
   \[ [\text{Ca}^{2+}] = 2.1 \times 10^{-2} \text{ (mol dm}^{-3}\text{)} \]
   \[ K_{\text{sp}} = 2.1 \times 10^{-2} \times (4.2 \times 10^{-2})^2 = 3.7 \times 10^{-5} \] (1)
(iii) less soluble in NaOH due to the common ion effect or equilibrium is shifted to the l.h.s. by high [OH\(^-\)] (NOT just a mention of Le Chat' on its own) (1) [6]

[Total: 15]
Q6.

(a) N≡N triple bond is (very) strong
   or the N₂ molecule has no polarity

(b) \[3\text{Mg}(s) \rightarrow 3\text{Mg}^{2+}(g) \quad \Delta H_1 = 3 \times 148 + 3 \times 2186 = 7002\]
   \[\text{N}_2(g) \rightarrow 2\text{N}^+(g) \quad \Delta H_2 = 994 + 2 \times 2148 = 5290\]
   \[\text{LE} = -\Delta H_1 - \Delta H_2 - 461 = -12,753 \text{ (kJ mol}^{-1}\text{)}\]
   \([-1]\text{ for each error}\]

(c) (i) \[\text{Li}_3\text{N} + 3\text{H}_2\text{O} \rightarrow \text{NH}_3 + 3\text{LiOH}\] (balanced equation)
   (ii) advantage: no high pressure/temperature/catalyst needed/standard conditions used
        disadvantage: Li is expensive
         or Li would need to be recycled/removed
         or LiOH by-product is corrosive/strongly basic
         or this would be a batch, rather than continuous process

(d) (i) \[\text{Li}_3\text{N}: 100 \times 14/35 = 40\% \text{ N}\]
     urea: \[100 \times 28/60 = 47\% \text{ N}\]
(ii) amide
(iii) \[\text{NH}_2\text{CONH}_2 + \text{H}_2\text{O} \rightarrow 2\text{NH}_3 + \text{CO}_2\]
     or \[\text{NH}_2\text{CO}_2\text{H} + \text{NH}_3\]
     or \[\text{NH}_2\text{CONH}_2 + 2\text{H}_2\text{O} \rightarrow 2\text{NH}_3 + \text{H}_2\text{CO}_3\]
(iv) The LiOH would be strongly alkaline
    or would increase the pH of the soil
    or would ‘burn’ the crops/reduce plant growth/stunt plants
    or would contaminate the environment

[Total: 12]
Q7.

1 (a) (i) the enthalpy change/released when 1 mole is formed of ionic lattice from the gas phase ions

(ii) $\text{Mg}^{2+} + \text{O}^{2-} \rightarrow \text{MgO}$

(b) measurements needed:

*volume/mass/weight of water* (in calorimeter)
initial + final temperature/temperature change/temperature rise (of the water)
mass of Mg (used)/mass MgO

*Not* volume/moles/mass of oxygen used

(c) $\Delta H = 148 + 736 + 1450 + 496/2 - 141 + 798 - 3791$

   $= -552 \text{ kJ mol}^{-1}$

(d) $\text{Na}_2\text{O}(s) + \text{H}_2\text{O}(aq/l) \rightarrow 2\text{NaOH}(aq)$

$\text{MgO}(s) + \text{H}_2\text{O}(aq/l) \rightarrow \text{Mg(OH)}_2(s) \text{ or Mg(OH)}_2(aq)$

pH 12.5-14 [NaOH] AND 8-10.5 [Mg(OH)]$_2$ respectively

[Total: 12]
1. (a) (i) enthalpy/energy change/released when 1 mol of ions... in the gas phase (are dissolved in) water

(ii) \( \text{Mg}^{2+}(g) + \text{aq (or H}_2\text{O) } \rightarrow \text{Mg}^{2+}(\text{aq}) \) or \([\text{Mg(H}_2\text{O)}_2]^{2+}\)

(iii) \( \text{Mg}^{2+} \) has a smaller radius/size or greater charge density than \( \text{Ca}^{2+} \) (ions required)

(iv) \( \text{O}^{2-} \) reacts with water to give \( \text{OH}^- \) or equation: \( \text{O}^{2-} + \text{H}_2\text{O} \rightarrow 2\text{OH}^- \)

(b) (apparatus: "insulated" calorimeter, water and thermometer)
- measure (known volume/mass of) water or stated volume of water (into calorimeter)
- take the temperature (of the water – NOT the \( \text{MgCl}_2 \))
- weigh out known mass of \( \text{MgCl}_2 \) or stated mass of \( \text{MgCl}_2 \)
- take final/highest/constant temperature or record temperature change/rise 4 \( \times \) \[1\]

(c) (i) \( \Delta H^\circ_{\text{sol}} = 641 - 801 = -160 \text{ kJ mol}^{-1} \)

(ii) \( \Delta H^\circ_{\text{hyd}} = (1890 - 2526 - 160)/2 = -398 \text{ kJ mol}^{-1} \)

(d) solubility: \( \text{MgSO}_4 > \text{BaSO}_4 \) or decreases down the group
- because \( \Delta H^\circ_{\text{sol}} \) is more endothermic for \( \text{BaSO}_4 \) or more exothermic for \( \text{MgSO}_4 \)
- due to larger \( n_{\text{ion}} \) or smaller charge density of \( \text{Ba}^{2+} \) (ion has to be mentioned)
- leading to smaller \( \text{LE} \) and \( \text{HE} \) or \( \text{LE} \) and \( \text{HE} \) decrease
- but difference in \( \text{HE} \) (between \( \text{Mg}^{2+} \) and \( \text{Ba}^{2+} \)) is larger than the difference in \( \text{LE} \) (between \( \text{MgSO}_4 \) and \( \text{BaSO}_4 \))
- or \( \text{HE} \) is dominant or \( \text{HE} \) decreases more than \( \text{LE} \)

[Total: 16]
Q9.

(a) \[ 2 \text{Na}^+ (g) + \text{O}^2^- (g) \rightarrow \text{Na}_2\text{O}(s) \] (must have all 3 state symbols) [1]

(b) (i) A: (2)Na(g)
    B: O(g) [NOT O(g)]

    (ii) 1: (first) ionisation energy (of sodium) or IE or \( \Delta H_f \)
    2: first and second electron affinities (of oxygen) or \( EA_1 + EA_2 \)
    (if B was stated as O(g) rather than O(g), allow \( \frac{1}{2} \)-mark for \( EA_2 \) only)
    3: lattice energy (of Na\(_2\)O) or LE or \( \Delta H_{1m} \)
    4: enthalpy change of formation or \( \Delta H_f \) (of \( \text{Na}_2\text{O} \)) or \( 2\Delta H_c \)
    [for parts (i) and (ii) award \( \frac{1}{2} \)-mark for each correct answer. Total the halves and round down] [3]

(c) \( \Delta H_f = 2\Delta H_{1m}(\text{Na}) + 2 \text{IE}(\text{Na}) + \Delta H_{1m}(\text{O}) + (EA_1 + EA_2)(\text{O}) + \text{LE} \)
\[ -414 = 2(107) + 2(494) + 496/2 + (-141 + 798) + \text{LE} \]
\[ \therefore \text{LE} = -2521 \text{ (kJ mol}^{-1}\text{)} \]
correct answer, including sign [3]

allow [1] for use of the 6 correct values, i.e. the 4 on the question paper and 2 obtained from the data book: 496 and 494 (be aware that the “494” may appear as “988” and the “496” as “248” and the “798-141” as “657”)

allow [1] for use of the correct multipliers for the values used , i.e. if IE(Na) has been omitted, don’t penalise for not multiplying 494 by 2. There are three multipliers: \( x_2, x_2 \) and \( x_{1/2} \). Some candidates are using the bond energy of O-O rather than O=O, in which case you can allow 150/2 for this mark (they will have forfeited the previous mark)

allow [2] for a correctly calculated answer from just one incorrect piece of data. 3

(d) (i) higher/bigger/more (i.e. more negative) [1]
    doubly charged cation or bigger charge (density) of cation or smaller cation [1]

    (ii) furnace linings or refractory material or crucibles [1]
    high melting point [1]

Total: 11
Q10.

3. Solubilities decrease down the group
   - Hydration energy of the cation decreases
   - Lattice energy stays the same, or decreases less than H.E.
   - Making $\Delta H_{\text{solution}}$ more endothermic or H.E. no longer able to overcome L.E.

Q11.

(c) (i) $Ag^+(g) + Br^-(g) \rightarrow AgBr(s)$

(ii) LE = $\Delta H_f$ (all the rest)
     = $-100 - (731 + 285 + 112 - 325)$
     = $-100 - 731 - 285 - 112 + 325$
     = $-903 \text{ kJ mol}^{-1} \quad \{[-1] \text{ for each error of sign or maths}\}$

(iii) LE(AgCl) should be higher/more negative,
      due to size/radius of $Cl^-$ being less than that of Br (both)

(d) More energy needed, since $r_{Cl^-} < r_{Br^-}$ or ionised electron nearer to nucleus
     or less shielding etc. or in terms of I.E.($Cl^-$) > I.E.($Br^-$)

Q12.
3 (a) (i) \[2\text{Ca(NO}_3\text{)}_2 \rightarrow 2\text{CaO} + 4\text{NO}_2 + \text{O}_2 \text{ (or x \%)} \] (1)

(ii) (Down the group the nitrates)

become more stable or are more difficult to decompose
or need a higher temperature (to decompose) (1)

because the radius of cation/Group II ion/M^{2+} increases
or charge density of the cation decreases (1)

thus causing less polarisation/distortion of the anion/NO_3/nitrate (1)

(b) "molar mass" of mixture = 211.6 + 3 x 12 = 247.6 (1)

10 g is thus \(10/247.6 = 0.040(4)\) moles (allow ecf for 0.047(3), from \(M_f = 211.6\) (1)

no of moles of gas produced = \(0.0404 \times 4 = 0.162\) moles (ecf: 0.189 mol)

\[\therefore \text{volume} = 0.1616 \times 24 = 3.88 \text{ or } 3.9 \text{ dm}^3\] (allow ecf for 4.54 dm³) (1)
(correct ans = (3) marks)

(alternative method:

1 mole/247.6g of mixture will produce \(4 \times 24 = 96 \text{ dm}^3\) of gas (1)

\[\therefore 10\text{g of mixture will produce } 96 \times 10/247.6 = 3.88 \text{ or } 3.9 \text{ dm}^3\] (1)

[3]

(c) (CO is poisonous...)

due to complexing/ligand exchange with (Fe of) haemoglobin (1)

(NOT redox involving Fe^{2+}/Fe^{3+})

stopping \(O_2\) being transported around body/in blood/to tissues/from lungs (1)

[2]

[Total: 9 max 8]

Q13.
2  (a) solubility decreases (down Group II)
    lattice energy decreases
    solvation/hydration energy (of cation) decreases
    but more so than does lattice energy/is not able to overcome LE
    \( \Delta H_{\text{soln}} \) becomes more endothermic/positive/less exothermic
    [max 4]

(b) identities of A and B

\[
\begin{align*}
\text{Mg(OH)}_2 + \text{H}_2\text{C}_2\text{O}_4 & \rightarrow \text{MgC}_2\text{O}_4(\text{aq}) + 2\text{H}_2\text{O} \\
\text{(A)} \\
\text{MgC}_2\text{O}_4(\text{aq}) + \text{Ca(NO}_3)_2 & \rightarrow \text{Mg(NO}_3)_2 + \text{CaC}_2\text{O}_4(\text{s}) \\
\text{(B)}
\end{align*}
\]

[2 x [1] 1]

(c) (i) \( K_{sp} = [\text{Mg}^{2+}][\text{OH}^-]^2 \)
    units are \( \text{mol dm}^{-3} \)
    ecf from \( K_{sp} \) [1]

(ii) \( \text{cell } [\text{Mg(OH)}_2(\text{aq})] = [\text{Mg}^{2+}] = x \) \( \therefore K_{sp} = 2 \times 10^{-11} = 4x^3 \)
    ecf [1]

\[ x = 1.71 \times 10^{-4} \text{ mol dm}^{-3} \]

(iii) less soluble because of the common ion effect
    or the equilibrium \( \text{Mg(OH)}_2(\text{s}) = \text{Mg}^{2+}(\text{aq}) + 2\text{OH}^-(\text{aq}) \) is moved to the left
    [5]

[Total: 12]

Q14.

3  (a) (i) carbonates become more stable down the Group/higher decomposition temperature
    cation/M\(^{2+}\) radius/size increases down the group/M\(^{2+}\) charge density decreases
    anion/carbonate ion/CO\(_3^{2-}\) suffers less polarisation/distortion
    [1]  [1]

(ii) ionic radii quoted: 
    \( \text{Ca}^{2+}: 0.099 \text{ nm} \)
    \( \text{Zn}^{2+}: 0.074 \text{ nm} \)
    \( \text{Pb}^{2+}: 0.120 \text{ nm} \)
    [1]

thus we expect ZnCO\(_3\) to be less stable, but PbCO\(_3\) to be more stable
if candidate states PbCO\(_3\) is more stable than ZnCO\(_3\) (or converse) with no reference to CaCO\(_3\) give [1] as salvage.

Q15.
2 (a) \( \text{Ca}^{2+}(g) + 2\text{Cl}^-(g) \rightarrow \text{CaCl}_2(s) \)  

(b) \text{CaF}_2 \text{ and CaS both have larger lattice energies (than CaCl}_2 \text{)}  

(i) \( \text{F}^- \) is smaller than \( \text{Cl}^- \)  

(ii) \( \text{S}^{2-} \) is more highly charged than \( \text{Cl}^- \)  

(c) \( \text{LE} = -[178 + 590 + 1150] - [244 - 2 \times 349] - 796 \)  
\[ \checkmark \quad \checkmark \] \[ \text{signs} \checkmark \]  
\( = -2260 \text{ (kJ mol}^{-1} \text{)} \)  

(d) (i)  
\[ \begin{align*} \text{Ca} &= 28.2 / 40.1 \quad 0.703 \quad \Rightarrow 1 \\ \text{C} &= 25.2 / 12 \quad 2.10 \quad \Rightarrow 3 \\ \text{H} &= 1.4 / 1 \quad 1.4 \quad \Rightarrow 2 \\ \text{O} &= 45.1 / 16 \quad 2.82 \quad \Rightarrow 4 \end{align*} \]  

formula is \( \text{CaC}_2\text{H}_4\text{O}_4 \)  

(ii) malonic acid must be \( \text{C}_3\text{H}_4\text{O}_4 \), i.e. \( \text{CH}_3(\text{CO}_2\text{H})_2 \) (must be structural)  

[Total: 10]
Q17.

(a) Sulfates become less soluble down the group both lattice energy and hydration (are involved) but hydration energy decreases more than lattice energy or HE becomes less than LE or HE decreases whereas LE is almost constant (due to cationic radius increasing)

(b) (i) \[ n(CO) = \frac{pV}{RT} = 1.01 \times 10^5 \times 140 \times 10^{-3} / (8.31 \times 450) = 3.78 \]

or \[ = 140 \times (273/450) / 22.4 = 3.79 \]
allow= \[ 140 \times (298/450) / 24.0 = 3.86 \]

(ii) \[ n(BaSO_4) = n(CO)/4 = 0.945 \text{ moles (or 0.9475)} \]
If RTP used answer is 0.966

(iii) \[ M_i = 233, \]
so \[ 0.945 \text{ mol} = 0.945 \times 233 = 220g \Rightarrow 100 \times 220/250 = 88(0.07)\% \]
(or \[ 0.9475 \text{ mol} \Rightarrow 220.8g \Rightarrow 88(3)\% \])
If RTP used answer is 90(0)%

(c) (i) from data booklet, \[ 1^{\text{st}} \text{ IE} = 502; \ 2^{\text{nd}} \text{ IE} = 966; \text{ sum} = 1468 \text{ kJ mol}^{-1} \]

so \[ -460 = 1468 + 180 + 279 - 200 + 640 + LE \]
\[ -460 = 2367 + LE \]
LE \[ = -2827 \text{ kJ mol}^{-1} \]
(-1 for each error)

(ii) LE of BaS should be smaller than that of BaO, since \[ S^{2-} \text{ is bigger than } O^{2-}. \]

[Total: 11]

Q17.

4 (a) The energy required to break...
......1 mole of bonds in the gas phase

(b) HCl: nothing happens AND HI: purple fumes (at a low temperature)
purple is iodine formed (or in an equation: \[ 2\text{HI} \rightarrow H_2 + I_2 \])
H-X bond energy becomes smaller/weaker down the group

(c) data needed: F-F = 158
Cl-Cl = 244
\[ 6 \times \text{E(Cl-F)} = -328 = 3 \times 158 + 244 \]
\[ \text{E(Cl-F)} = +174 (\text{kJ mol}^{-1}) \]

[Total: 7]
Q18.

1 (a) (i) *either burn or shine light/uv on mixture of H₂ + C₆₆ but NOT heat*  
  red/orange/brown colour of bromine decolourises/disappears steamy/misty/white fumes produced container gets warm/hot  

  (ii) \[ H-H = 436 \quad Cl-Cl = 244 \quad H-Cl = 431 \]
  \[ \Delta H = 436 + 244 - 2(431) = -182 \text{ kJ mol}^{-1} \]
  \[ H-H = 436 \quad Br-Br = 193 \quad H-Br = 366 \]
  \[ \Delta H = 436 + 193 - 2(366) = -103 \text{ kJ mol}^{-1} \]

  (iv) H-Br bond is weaker than the H-Cl bond – allow converse.

(b) (i) light

(ii) bonds broken = C-H & I-I = 410 + 151 = 561  
bonds made = C-I & H-I = 240 + 299 = 539  
\[ \Delta H = 551 - 539 = +22 \text{ kJ mol}^{-1} \]

(iii) The overall reaction is endothermic or no strong bonds/only weak bonds are formed or high \( E_{act} \)

(c) (i) homolytic fission is the breaking of a bond to form (two) radicals/neutral species/odd-electron species

(ii) \( \bullet \text{CH}_2\text{Cl} \)  
the C-Br bond is the weakest or needs least energy to break/breaks most easily

(d)

\[ \text{Cl} \quad \text{Cl} \quad \text{Cl} \quad \text{Cl} \]

4 structures: [2]  
2 or 3 structures: [1]

Correct chiral atom identified  
[Total: 18]

Q19.
Q20.

4 (a) $\text{Ca(NO}_3\text{)}_2 \rightarrow \text{CaO} + 2\text{NO}_2 + \frac{1}{2} \text{O}_2$  

(b) (down the group) nitrates become more stable or require a higher temperature to decompose as size/radius of (cat)ion increases or charge density of ion decreases so polarisation/distortion of anion/nitrate decreases

(c) (i) $\text{Li}_2\text{CO}_3 \rightarrow \text{Li}_2\text{O} + \text{CO}_2$

(ii) radius of Li ion/Li$^+$ is less than that of Na ion/Na$^+$ (or polarising power of M$^+$ is greater)

(iii) Brown/orange fumes/gas would be evolved or glowing splint relights

Since the nitrate is likely to be thermally unstable or decomposes (just like the carbonate) or the balanced equation: $2\text{LiNO}_3 \rightarrow \text{Li}_2\text{O} + 2\text{NO}_2 + \frac{1}{2}\text{O}_2$

[Total: 8]
8 e⁻ around chlorine
1 H-electron (+) on the Cl⁻ ion
3 covalent (ox) and one ionic (oo) around N

(b) (i) it would react (with H₂SO₄)
(ii) CaO + H₂O → Ca(OH)₂
(iii) CaO absorbs more water or CaO has greater affinity for water

(c) (i) 2Ca(NO₃)₂ → 2CaO + 4NO₂ + O₂
(ii) (Down the group, the nitrates)
    become more stable/stability increases
    because the size/radius of ion (M²⁺) increases
    thus causing less polarisation/distortion
    of the anion/NO₃⁻/N-O bond

[Total: 10]
1 (a) 

![Diagram of chemical structure]

- Dative bond to an oxygen using two N electrons
- 8 electrons around N in 1 double + 2 single bonds
- A total of 24 electrons, including one, and only one "\[\overset{\cdot}{\text{O}}\]
- (the extra electron, "\[\overset{\cdot}{\text{O}}\], can be in a bond or a lone pair)

(b) (i) \[2\text{Mg(NO}_3\text{)}_2 \rightarrow 2\text{MgO} + 4\text{NO}_2 + \text{O}_2\]

(ii) (down the group)
- Nitrates become more stable or are more difficult to decompose or need a higher temperature to decompose
- Because there is less polarisation of the anion/nitrate ion/N–O bonds
- As radius of \(M^{2+}\)/metal ion increases or charge density of the cation decreases

(c) \[\text{Cu} + 4\text{H}^+ + 2\text{NO}_3^- \rightarrow \text{Cu}^{2+} + 2\text{NO}_2 + 2\text{H}_2\text{O}\]

species [1]
balancing [1]

[Total: 9]