Edexcel AS Chemistry Exam practice answers

6A, B, C: Introduction, alkanes and alkenes

1 (a) A (✓)

 (b) (i) A homologous series is a series of compounds with the same functional group and the same general formula; (✓) in which one member differs from the next by CH2 (✓)

 (ii) Amount of octane  = 0.087¦72¦mol (✓)

 Amount of oxygen needed = 12.5 × 0.087¦72 = 1.097¦mol (✓)

 Volume of oxygen needed = 24 × 1.096 = 26¦dm3 (✓)

 (c) (i) CH4 + Cl2 → CH3Cl + HCl (✓)

 (ii) Initiation:

 (✓)

 Propagation: Cl• + CH4 → HCl + CH3•; (✓) and CH3• + Cl2 →CH3Cl + Cl• (✓)

Termination: any one of Cl• + Cl• → Cl2 or Cl• + CH3• → CH3Cl or CH3• + CH3• →C2H6 (✓)

2 (a) (i) C (✓)

 (ii) B (✓) (O in OH has a higher priority than the C in CH3 so it is the *Z*-isomer)

 (b) (i) Add bromine water; (✓) the red-brown solution goes colourless (✓) (do not allow ‘goes clear’)

 (ii) CH3CH=CH2 + Br2 → CH3CHBrCH2Br (✓)

 (c) (i) *Electrophilic* means that a species accepts a pair of electrons from another species and forms a covalent bond; (✓) in *addition* two molecules react to form a single molecule (✓)

 (ii)



Both arrows in step 1;(✓) arrow in step 2; (✓) correct product (✓)

(iii) The primary CH3CH2CH2+ intermediate ion is less stable than the secondary CH3CH+CH3 ion (✓)

(d)



 four-carbon chain; (✓) rest of repeat unit with continuation bonds (✓)

6D, E: Halogenoalkanes and alcohols

1 (a) B (✓)

 (b) (i) Orange solution goes green (✓)

 (ii) The solution stays orange (✓)

 (c) Propanoic acid (✓)

 (d)



Condenser and heater; (✓) water flow; (✓) open at top only (✓)

2 (a) (i) C2H5Br + OH− → C2H5OH + Br− (✓)

 (ii) C2H5Br + OH− → CH2=CH2 + H2O + Br− (✓)

 (b) (i) A nucleophile is a species with a lone pair of electrons; (✓) that forms a covalent bond with a δ+ charged atom (✓)

 (ii) D (✓)

 (iii)



 all species; (✓) arrow from lone pair; (✓) arrow from σ bond; (✓)

 transition state; (✓) arrow from transition bond (✓)

3 (a) D (✓)

 (b) (i) H2O/ water (✓)

 (ii) A C–Br bond is weaker than a C–Cl bond; (✓) so the activation energyis lower;

 (✓) and so the reaction is faster

 (c) Add silver nitrate solution and warm; (✓); cream precipitate forms; (✓) insoluble in dilute ammonia; but soluble in concentrated ammonia; (✓)

 (d) 2NH3 + CH3CHBrCH3 → CH3CH(NH2)CH3; (✓) + NH4Cl(✓)

 (e) A (✓)