

Question 26 (Answer: D)

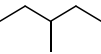
- Both steroids carry a ketone in the first ring, and both have a C=C inside that ring.
- A C=C *inside* a six-membered ring cannot show geometrical isomerism – the ring locks it.
- Their molecular formulas also differ, since progesterone carries an extra ethanoyl group.

Question 28 (Answer: A)

- Read the skeletal formula: every vertex and every line end is a carbon atom.
- Fill in hydrogens to give each carbon four bonds.
- Testosterone comes out as C₁₉H₂₈O₂, with one OH and one ketone oxygen.

Question 37 (Answer: D)

- Acid hydrolysis turns a nitrile into a carboxylic acid, so CH₃CN gives ethanoic acid.
- An ester of ethanoic acid hydrolyses back to ethanoic acid plus the alcohol.
- An aldehyde is not hydrolysed by aqueous acid at all – that would need an oxidising agent.

3(a)	M1 (family of molecules / compounds / series with) same general formula OR (family of molecules where) molecular formula differs (only) by (units of) CH _{2(n)} . M2 similar chemical properties / reactions
3(b)	M1 strong C—H (bonds) M2 non-polar (C—H / molecule / bonds)
3(c)	cracking
3(d)(i)	M1  M2 
3(d)(ii)	M1 B < A < hexane. M2 hexane / unbranched has stronger / more IMFs M3 hexane / unbranched requires most / more energy
3(e)(i)	H ₂ ((g)) OR hydrogen (gas)
3(e)(ii)	M1 +215 + (–156) – (+48) = M2 +11 kJ mol ^{–1}
3(e)(iii)	C ₈ H ₁₄ + 9½O ₂ → 6CO ₂ + 7H ₂ O