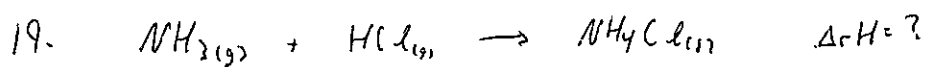


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- | | | |
|------------|-------------|-----------------|
| 1. A | 6. A | 11. A |
| 2. 572 kJ | 7. B | 12. D |
| 3. 7.82 °C | 8. D | 13. <u>3312</u> |
| 4. 1235 | 9. 1442 kJ | 15. C or D |
| 5. 1246 | 10. -749 kJ | |



$$(a) \quad \Delta_r H = \left[(1 \text{ mol}) (-314.4 \text{ kJ/mol}) \right]_{\text{prod}} - \left[(1 \text{ mol}) (-45.9 \text{ kJ/mol}) + (1 \text{ mol}) (-92.3 \text{ kJ/mol}) \right]_{\text{react}}$$

$$\Delta_r H = -176.2 \text{ kJ}$$

(b) Energy released by forming bonds is greater, as evidenced by the fact that the reaction releases energy to the surroundings, meaning more energy goes out than comes in.

20. (a) to reduce the activation energy of the reaction, which speeds up the reaction and allows it to occur at lower temperatures

$$(b) \quad \Delta_r H = -128.7 \text{ kJ}$$

$$(c) \quad \Delta_r H = n \Delta_r H_m$$

$$= \left(\frac{1000 \text{ g}}{32.05 \text{ g/mol}} \right) (-128.7 \text{ kJ/mol}) = 4013.09 \dots \text{ kJ}$$
$$= \boxed{4.01 \times 10^3 \text{ kJ}}$$

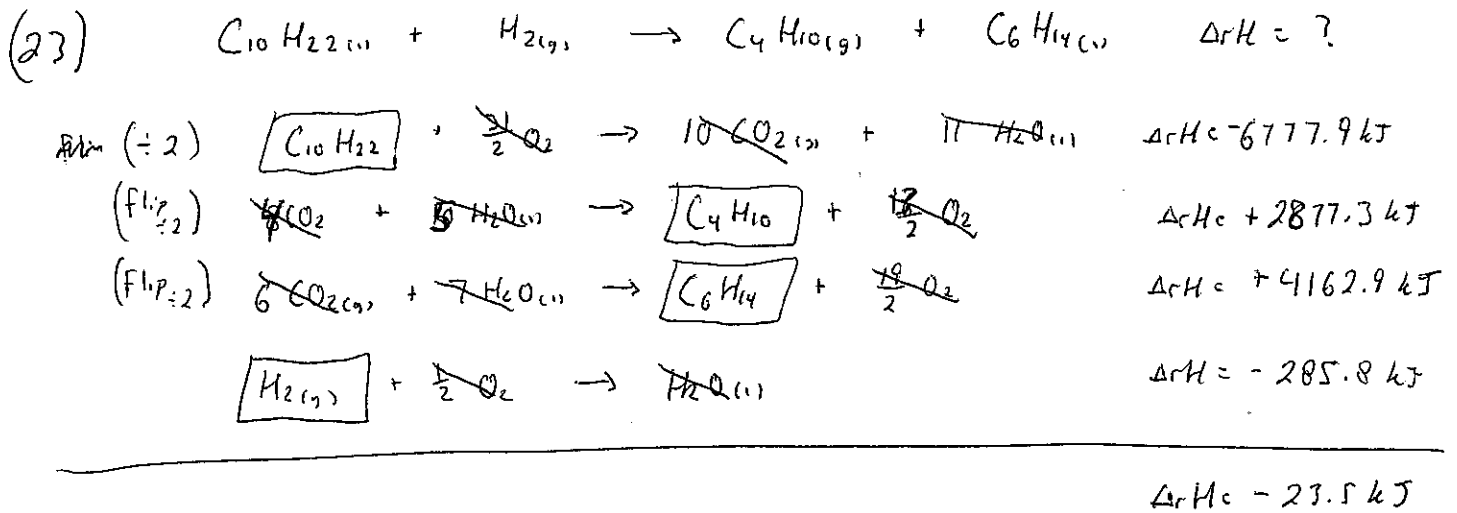
23.

User Name :

scott.gray

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(b) (i) not change (ii) speed up (iii) lower