(2) $\int (6\sqrt{x} - 4x^{-3} + 5)\,dx$

$= \int (6x^{1/2} - 4x^{-3} + 5)\,dx$

$= \frac{6x^{3/2}}{3/2} - \frac{4x^{-2}}{-2} + 5x + C$

$= \frac{12x^{3/2}}{3} + 2x^{-2} + 5x + C$

$= 4x^{3/2} + 2x^{-2} + 5x + C$

$= 4\sqrt{x^3} + \frac{2}{x^2} + 5x + C$

Question			Generic scheme	Illustrative scheme	Max mark
2.			$\bullet^1$ express $6\sqrt{x}$ in integrable form $\bullet^2$ integrate first term $\bullet^3$ integrate second term $\bullet^4$ complete integration	$\bullet^1$ $6x^{\frac{1}{2}}$ $\bullet^2$ $\frac{6x^{\frac{3}{2}}}{\frac{3}{2}}\ldots$ $\bullet^3$ $\ldots-\frac{4x^{-2}}{-2}\ldots$ $\bullet^4$ $4x^{\frac{3}{2}}+2x^{-2}+5x+c$	**4**

Notes:

1. $\bullet^2$ is only available for integrating a term with a fractional index.
2. All coefficients must be simplified at $\bullet^4$ stage for $\bullet^4$ to be awarded.
3. Do not penalise the appearance of an integral sign throughout.
4. Do not penalise the omission of '$+c$' at $\bullet^2$ and $\bullet^3$.

Commonly Observed Responses:

Candidate A

$\int\left(6x^{\frac{1}{2}}-4x^{-3}+5\right)dx$ $\bullet^1$ ✓

$=\frac{6x^{\frac{3}{2}}}{\frac{3}{2}}-\frac{4x^{-2}}{-2}+5x+c$ $\bullet^2$ ✓ $\bullet^3$ ✓

$=\frac{12}{3}x^{\frac{3}{2}}+2x^{-2}+5x+c$

$=4\sqrt{x^3}+\frac{2}{\sqrt{x}}+5x+c$ $\bullet^4$ ×

$\bullet^4$ cannot be awarded over two lines of working