5.1 Integration

Question Paper

Course	Edexcel IAL Maths: Pure 1
Section	5. Integration
Topic	5.1 Integration
Difficulty	Hard

Time allowed: **30**

Score: **/26**

Percentage: **/100**

Question 1

(a) Use calculus to find

$$\int \left(x^2 + 5 - \frac{3}{x^2}\right) \mathrm{d}x$$

[3 marks]

Question 1

(b) Use calculus to find

$$\int \left(\frac{4}{x^3} + \sqrt{x}\right) \mathrm{d}x$$

[3 marks]

Question 2

Use calculus to work out the following integrals:

(a)

$$\int \left(\frac{1}{3}x^2 + 3x^{-\frac{1}{2}}\right) \mathrm{d}x$$

[2 marks]

Question 2

(b)

$$\int \frac{(x\ +\ 3)^2}{\sqrt{x}}\ \mathrm{d}x$$

[3 marks]

Question 3

Find the equation of the curve passing through the point (-2, 3) and given by

$$y = \int \left(3 - 2x + \frac{4}{x^2}\right) \mathrm{d}x$$

[4 marks]

Question 4

(a) Show that

$$(2-x)^3 = 8 - 12x + 6x^2 - x^3$$

[3 marks]

Question 4

(b) Hence, or otherwise, work out

$$\int (2-x)^3 \, \mathrm{d}x$$

[3 marks]

Question 5

A function, $f(x)$, has second derivative given by

$$f''(x) = 6(x - 2).$$

Given that $f(3) = 20$, and $f'(2) = 8$, find $f(x)$.

[5 marks]