CHEMISTRY ONLINE
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PURE MATH

ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	FACTOR THEOREM
PAPER TYPE:	QUESTION PAPER -5
TOTAL QUESTIONS	8
TOTAL MARKS	44

Questions

Q1.

$$f(x) = 2x^3 + x^2 - 5x + c, \text{ where c is a constant.}$$

Given that f(1) = 0,

(a) find the value of c

(2)

(b) factorize f(x) completely,

(4)

(c) find the remainder when f(x) is divided by (2x – 3).

(2)

(Total for question = 8 marks)

Q2.

$$f(x) = 3x^3 - 5x^2 - 16x + 12.$$

(a) Find the remainder when f(x) is divided by (x – 2).

(2)

Given that (x + 2) is a factor of f(x),

(b) factorize f(x) completely.

(4)

(Total for question = 6 marks)

Q3.

(a) Use the factor theorem to show that (x + 4) is a factor of $2x^3+x^2-25x+12$.

(2)

(b) Factorize $2x^3 + x^2 - 25x + 12$ completely

(4)

(Total for question = 6 marks)

Q4.

$$f(x) = 2x^3 + 3x^2 - 29x - 60.$$

(a) Find the remainder when f(x) is divided by (x + 2).

(2)

(b) Use the factor theorem to show that (x + 3) is a factor of f(x).

(2)

(c) Factorize f(x) completely.

(4)

(Total for question = 8 marks)

Q5.

$$f(x) = x^3 + 4x^2 + x - 6.$$

(a) Use the factor theorem to show that (x + 2) is a factor of f(x).

(2)

(b) Factorize f(x) completely.

(2)

(c) Write down all the solutions to the equation

$$x^3 + 4x^2 + x - 6 = 0.$$

(4)

(Total for question = 8 marks)

Q6.

Use the factor theorem to determine whether $g(x)$ is a factor of $p(x)$,

If $p(x) = 2x^3 + x^2 - 2x - 1$, $g(x) = x + 1$

(4)

(Total for question = 4 marks)

Q7.

Determine which of the polynomials as has (x+1) a factor:

if $x^4 + x^3 + x^2 + x + 1$.

(5)

(Total for question = 5 marks)

Q8.

$$f(x) = 2x^3 - 3x^2 - 39x + 20$$

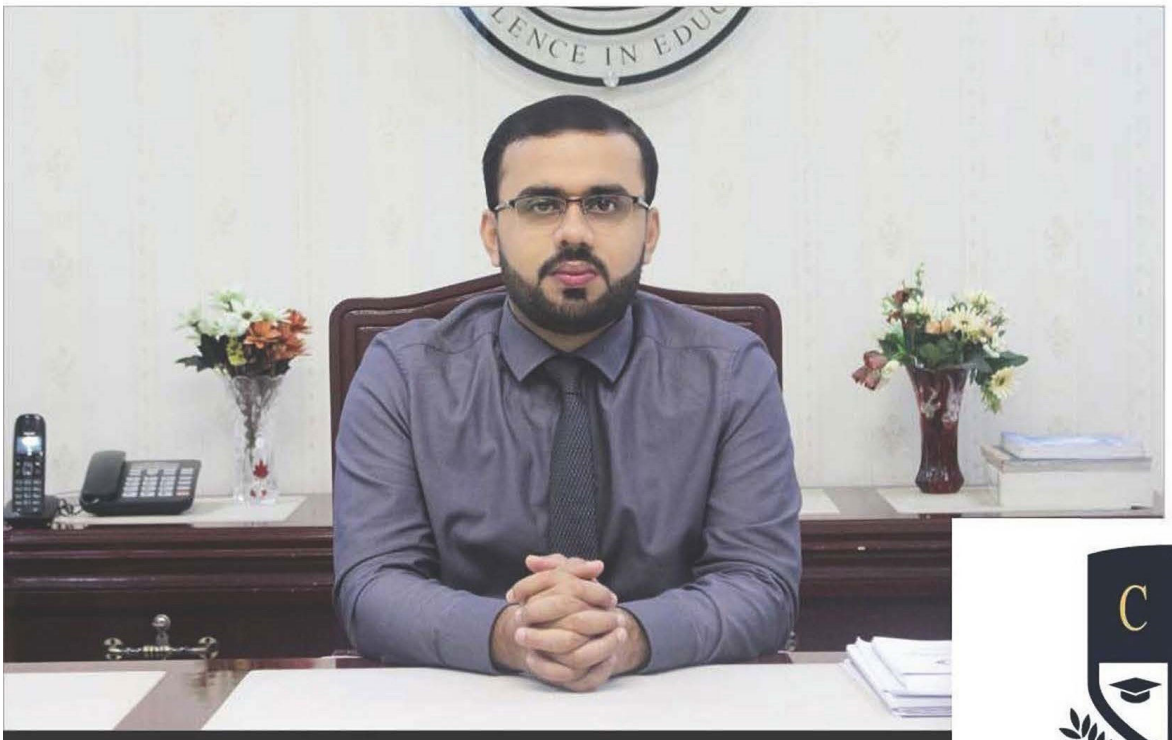
(a) Use the factor theorem to show that (x + 4) is a factor of f (x).

(2)

(b) Factorize f (x) completely

(4)

(Total for question = 6 marks)



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