CHEMISTRY ONLINE
TUITION

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PURE MATH

ALGEBRA AND FUNCTION

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	FACTOR THEOREM
PAPER TYPE:	QUESTION PAPER -6
TOTAL QUESTIONS	8
TOTAL MARKS	44

Questions

Q1.

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

(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)

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.

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

(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)

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.

(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)

Q6.

$$f(x) = (3x - 2)(x - k) - 8$$

where k is a constant.

(a) Write down the value of f(k).

(1)

When f(x) is divided by (x − 2) the remainder is 4

(b) Find the value of k.

(2)

(c) Factorize f (x) completely

(3)

(Total for question = 6 marks)

Q7.

(a) Find the remainder when

$$x^3 - 2x^2 - 4x + 8$$

is divided by

(i) $x - 3$,

(ii) $x + 2$.

(3)

(b) Hence, or otherwise, find all the solutions to the equation

$$x^3 - 2x^2 - 4x + 8 = 0.$$

(2)

(Total for question = 5 marks)

Q8.

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

Given that $f(1) = 0$,

(a) find the value of c

(2)

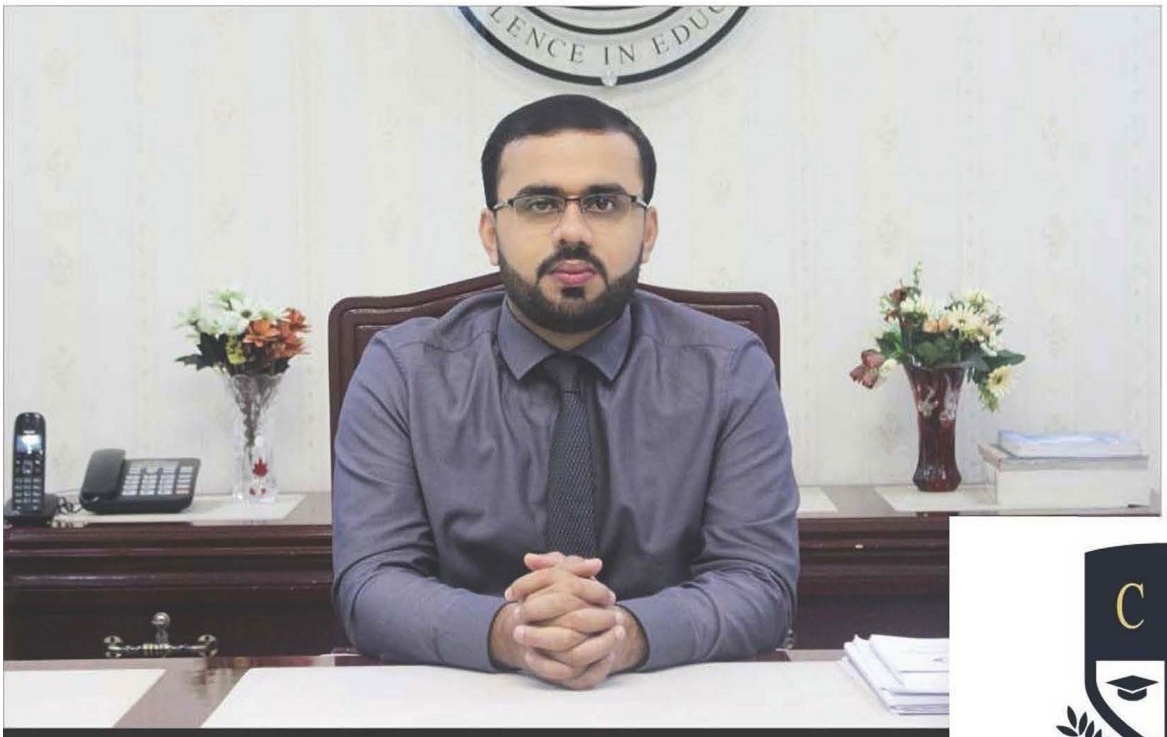
(b) factorize f(x) completely,

(4)

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

(2)

(Total for question = 8 marks)



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