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PURE MATHS

Algebra and Functions

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	SURDS AND INDICES
PAPER TYPE:	QUESTION PAPER -2
TOTAL QUESTIONS	8
TOTAL MARKS	40

Questions

Q1.

Find, using algebra, all real solutions to the equation
$$2^{2x-1} + 2^{1-2x} = 2$$

(4)

(Total for question = 4 marks)

Q2.

Find the solution: $2^{2x} + 3.2^x - 4 = 0$

Let $2^x = y$

$y^2 + 3y - 4 = 0$

$y^2 + 4y - y - 4 = 0$

$y(y + 4) - 1(y - 4) = 0$

$(y - 1)(y - 4) = 0$

$y - 1 = 0 \quad , \quad y - 4 = 0$

$y = 1 \quad , \quad y = 4$

$2^x = 2^0 \quad , \quad 2^x = 4$

$x = 0 \quad , \quad x = 4$

(a)   Identify the two errors.

(2)

(b)   Find the exact solution to the equation.

(2)

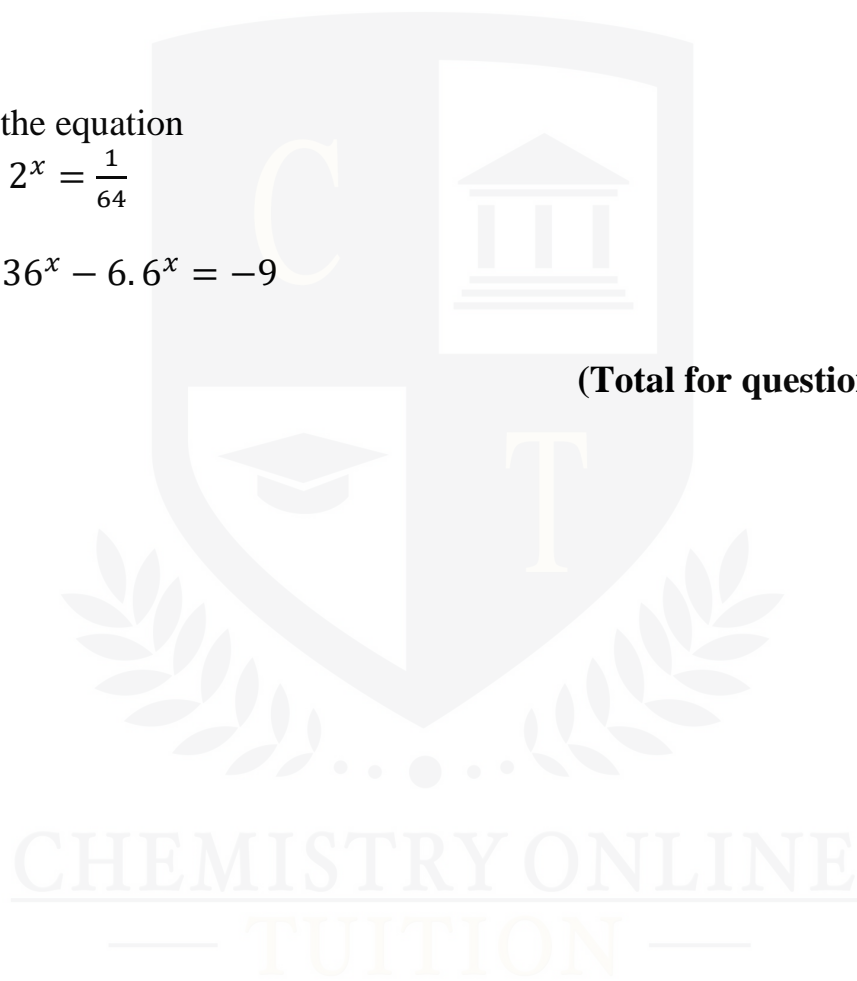**(Total for question = 4 marks)**

I am Sorry !!!!!

Q3.

Solve the equation

(i) $2^x = \frac{1}{64}$

(3)

(ii) $36^x - 6.6^x = -9$

(4)

(Total for question = 7 marks)

I am Sorry !!!!!

Q4.

Find the value of x if: $\qquad x^4 - x^2 - 2 = 0$

(5)

(Total for question = 5 marks)

Q5.

(i) Solve the equation

$$2^x = \frac{1}{256}$$

(3)

(ii) Solve the equation

$$4^{3x-2} = 4$$

(3)

(Total for question = 6 marks)

I am Sorry !!!!!

Q6.

Find, using algebra, all real solutions to the equation

(i) $\quad 16a^4 = \dfrac{1}{81}$

(4)

(ii) $\quad 16a^4 + 8a^2 + 1 = 0$

(4)

(Total for question = 8 marks)

Q7.

If $3^{2x+1} \div 9 = 27$, find x.
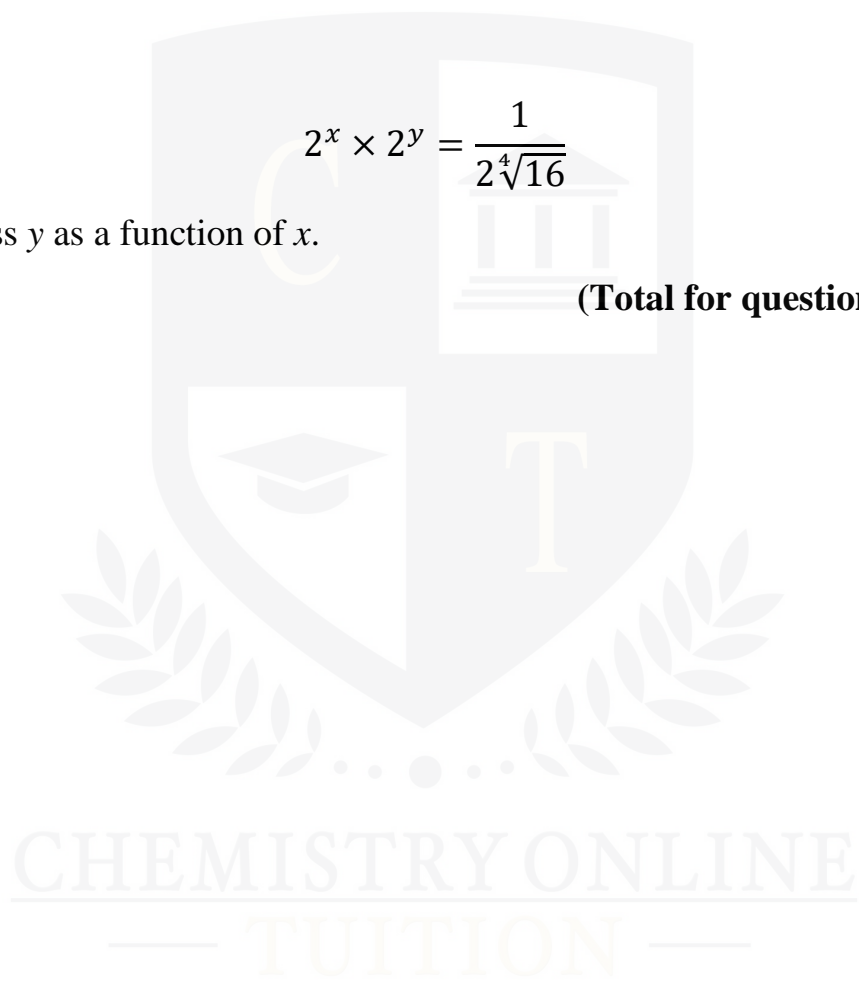
(Total for question = 3 marks)

I am Sorry !!!!!

Q8.

Given

$$2^x \times 2^y = \frac{1}{2\sqrt[4]{16}}$$

express *y* as a function of *x*.

(Total for question = 3 marks)

I am Sorry !!!!!

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