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PURE MATHS

Algebra and Functions

Level & Board	EDEXCEL (A-LEVEL)
TOPIC:	SURDS AND INDICES
PAPER TYPE:	QUESTION PAPER -6
TOTAL QUESTIONS	8
TOTAL MARKS	40

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Questions

Q1. Simplify

$$\left(\frac{125x^6}{64}\right)^{\frac{1}{3}}$$

(4)

(Total for question = 4 marks)

Q2. Given $y = 2^x$

(a) Express 4^x in terms of y .

(b) Hence, or otherwise, solve $4^x - 6(2^x) - 16 = 0$

(4)

(Total for question = 4 marks)

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Q3.

Solve the equation

$$8^{2x-5} = 2^{x+1}$$

(5)

(Total for question = 5 marks)

Q4.

(a) Solve the equation: $x^2 - 9x + 8 = 0$

(3)

(b) Hence solve the equation: $y^3 - 9y^{\frac{3}{2}} + 8 = 0$

(3)

(Total for question = 5 marks)

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Q5.

(i) Solve the equation

$$2^{2x+1} - 5(2^x) - 12 = 0$$

(5)

(Total for question = 5 marks)

Q6.

Express 8^{2x-5} in terms of 2^y , giving y in the form of $ax + b$, where a and b are constants.

(Total for question = 4 marks)

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Q7.

Find the value of x such that

(i) $8^{x+1} = 4^{3x-1}$

(4)

(ii) $81^{x+1} = 27^{3x-1}$

(4)**(Total for question = 8 marks)****Q8.**

(a) Simplify: $\frac{(2x^{\frac{1}{2}})^3}{4x^3}$

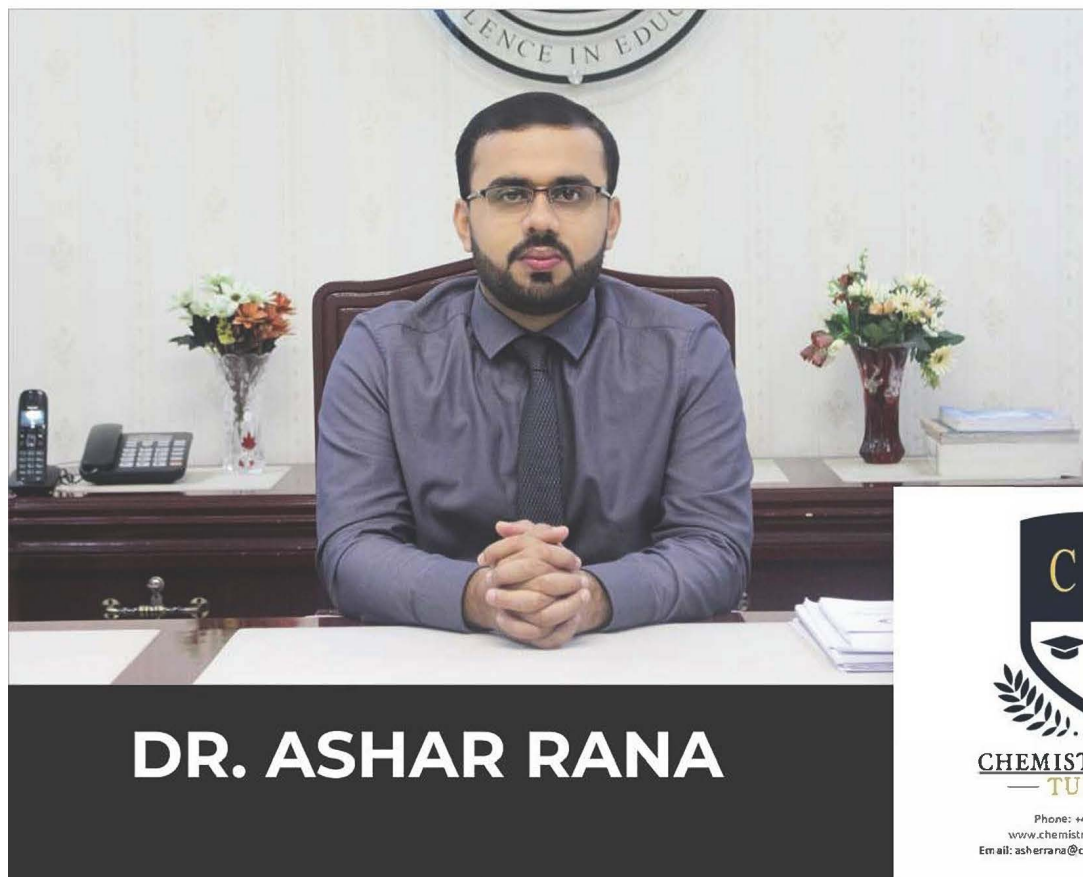
(2)

(b) Simplify: $\left(\frac{216x^6}{27y^3}\right)^{-\frac{2}{3}}$

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

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