

2025 ASOC ANSWER BOOKLET

Name: _____ School: _____ Account Number: _____

Section A: Multiple choice questions (30 marks)

Please record your answers from **Q1** to **Q15** on the online platform.

Section B: Short answer questions (90 marks)

Question 16

(a)

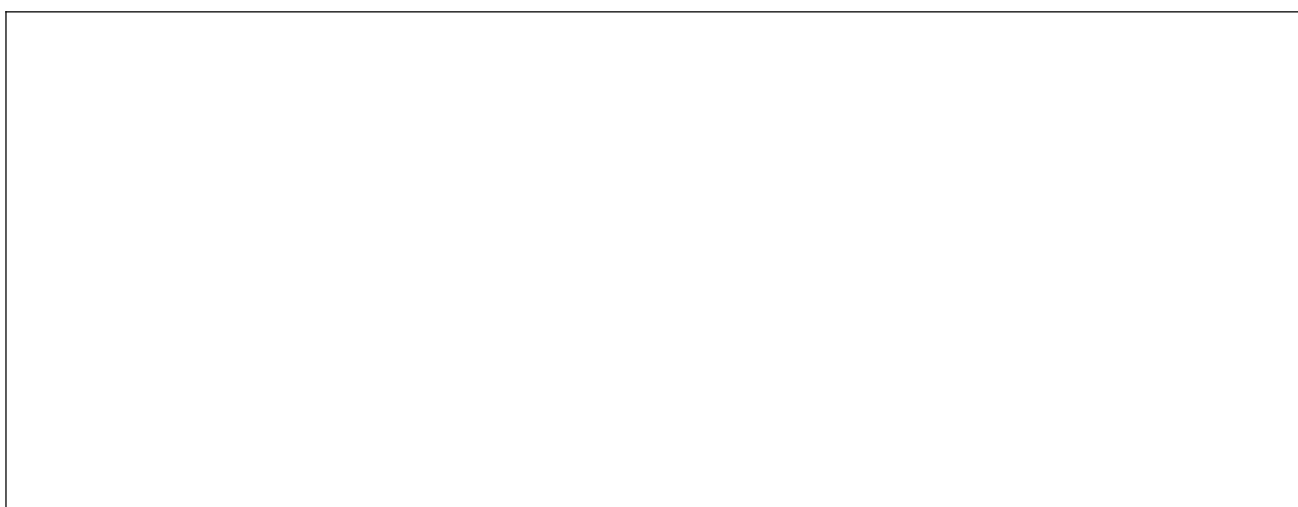
(b)

(c)

(d)



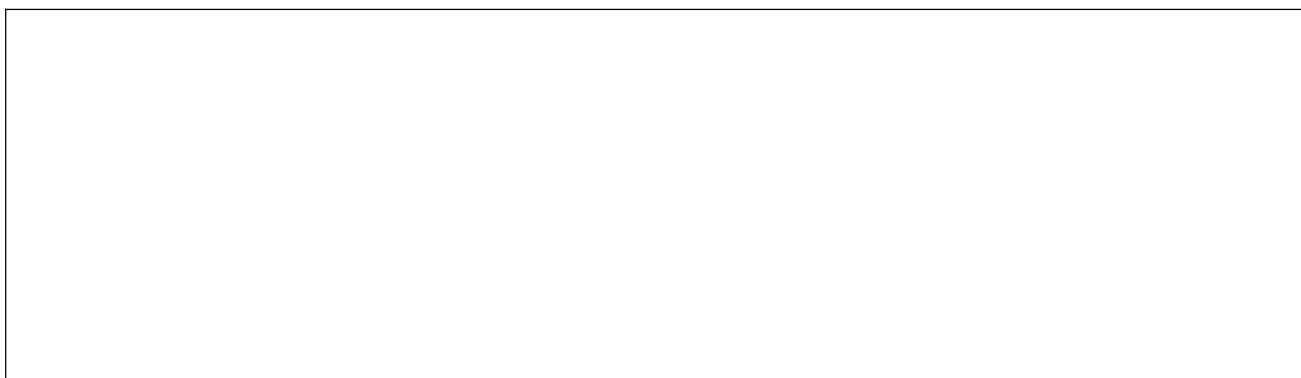
(e)



(f)



(g)



(h)

(i)

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(ii)

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(iii)

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(iv)

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(i)

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(j)

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(k)

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(l)

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(m)

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Question 17

(a)

Figure 1		
Figure 2		
Figure 3		
Figure 4		
Figure 5		
Figure 6		

(b)

<i>Question</i>	<i>Protein H</i>	<i>Protein I</i>	<i>Protein J</i>	<i>Protein K</i>
Number...				
Number...				
Number...				
If...				
Number...				
Number...				

(c)

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(d)

<i>Protein L</i>	
<i>Protein M</i>	
<i>Protein N</i>	
<i>Protein O</i>	

(e)

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(f)

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Question 18

(a)

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(b)

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(c)

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(d)

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(e)

(i)

P =	S =	T =	Q =
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(ii)

P =	S =	T =	Q =
-----	-----	-----	-----

(iii)

P =	S =	T =	Q =
-----	-----	-----	-----

(iv)

P =	S =	T =	Q =
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(f)

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(g)

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(h)

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(i)

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(j)

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(k)

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(l)

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(m)

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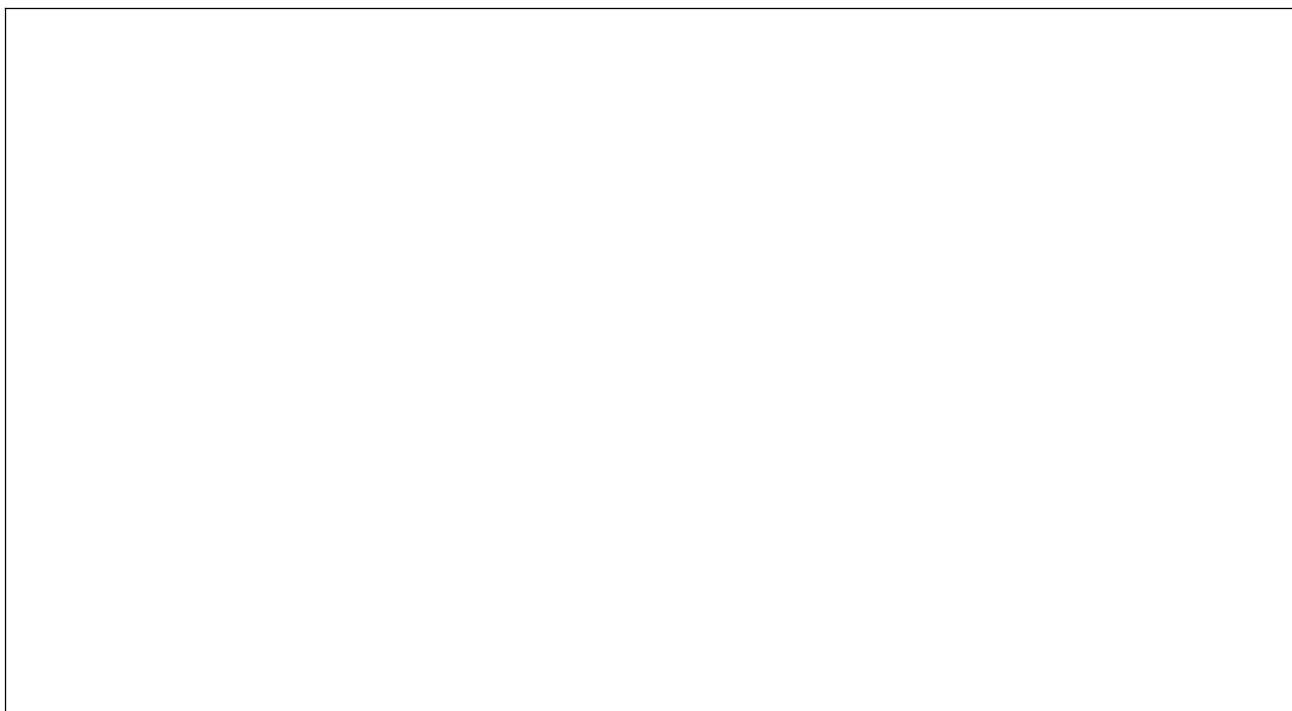
(n)



(o)



(p)



END OF THE ANSWER BOOKLET

DATA

Avogadro constant (N) = $6.022 \times 10^{23} \text{ mol}^{-1}$	Velocity of light (c) = $2.998 \times 10^8 \text{ m s}^{-1}$
1 Faraday = 96 485 coulombs	Density of water at 25 °C = 0.9971 g cm^{-3}
1 A = 1 C s ⁻¹	Acceleration due to gravity = 9.81 m s^{-2}
Universal gas constant (R) 8.314 J K ⁻¹ mol ⁻¹ $8.206 \times 10^{-2} \text{ L atm K}^{-1} \text{ mol}^{-1}$	1 newton (N) = 1 kg m s^{-2}
Planck's constant (h) = $6.626 \times 10^{-34} \text{ J s}$	1 pascal (Pa) = 1 N m^{-2}
Molar volume of ideal gas - at 0 °C and 100 kPa = 22.71 L - at 25 °C and 100 kPa = 24.79 L - at 0 °C and 101.3 kPa = 22.41 L - at 25 °C and 101.3 kPa = 24.47 L	$\text{pH} = -\log_{10}[\text{H}^+]$ $\text{pH} + \text{pOH} = 14.00 \text{ at } 25^\circ\text{C}$ $K_a = \{[\text{H}^+][\text{A}^-]\} / [\text{HA}]$ $\text{pH} = \text{p}K_a + \log_{10}\{[\text{A}^-] / [\text{HA}]\}$ $\text{PV} = nRT$ $E = h\nu$
Surface area of sphere $A = 4\pi r^2$	$c = \nu\lambda$

Periodic Table of Elements

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1 H 1.008		2	atomic number Symbol atomic weight																																																																																																																																																																																																																																																																																																																																																																														

57 La 138.9	58 Ce 140.1	59 Pr 140.9	60 Nd 144.2	61 Pm -	62 Sm 150.4	63 Eu 152.0	64 Gd 157.3	65 Tb 158.9	66 Dy 162.5	67 Ho 164.9	68 Er 167.3	69 Tm 168.9	70 Yb 173.0	71 Lu 175.0
89 Ac -	90 Th 232.0	91 Pa 231.0	92 U 238.0	93 Np -	94 Pu -	95 Am -	96 Cm -	97 Bk -	98 Cf -	99 Es -	100 Fm -	101 Md -	102 No -	103 Lr -