B.O.T TERM II 2019 S.5 CHEMISTRY PAPER 1 TIME: 1 HOUR

INSTRUCTIONS

1.	(a) Com	plete the fo	llowing	equations		
	(i)	15 0			-	(1 mark)
		, <u>-</u>		$\longrightarrow {}^{160}_{62}Sn + 4n_0^1t$		(1 mark)
(lement Y ha			g isotopes with isoto	opic masses and relative
		Isotopio	mass		Relative	abundance %
		23.98				78.60
		24.98				10.11
		25.98			1	1.29
	Calcu	ilate the ave	erage ato	mic mass of Y.		(4 marks)
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				•••••		
	•••••		•••••			
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	Comple (a)	te the follow	wing equ	ations and outline	the mechanism in	each case.
	, ,	CH ₃				
	CH_3	¢-0H	H_2SO_4			
		CH ₃	Heat			
	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •	• • • • • • • • • • • • • • • • • • • •			
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	(b) CH ₃ CH ₂ CH ₂ CH ₂ Br KOH/C ₂ H ₅ OH Reflux						
	(c) Using a suitable reagent state how the following can be differentiated. Include the observation and a suitable equation for the reaction.						
	C_3H_6 and C_2H_4						
	C ₃ 11 ₀ and C ₂ 11 ₄						
3.	(a) Define the following;						
	(i) Enthalpy of combustion						
	(ii) Enthalpy of reaction						
	(b) Given the following thermo chemical data						
	$H_2(g) + \frac{1}{2}O_2(g) \longrightarrow H_2O(1)$	$\Delta H^{\theta} C = -285.8 \text{ KJmol}^{-1}$					
	$C(s) + O_2(g)$ \longrightarrow $CO_2(g)$	$\Delta H^{\theta} C = -393.5 \text{KJmol}^{-1}$					
	$C_2H_2 + \frac{5}{2}O_2(g)$ \longrightarrow $2CO_2(g) + H_2O(l)$	$\Delta H^{\theta} C = -1305 \text{KJmol}^{-1}$					
	Determine the standard enthalpy of formation of enthyne.						
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