

APOLLO

Energetics

FBISE Chemistry Class 9 (SSC-I)

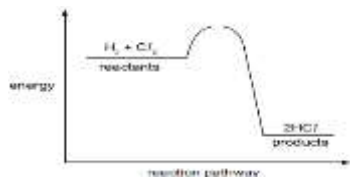
Domain B: Physical Chemistry

21 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

18.	Which of the following changes is endothermic?	$H_{(g)} + Cl_{(g)} \rightarrow HCl_{(g)}$	$H_2O_{(g)} \rightarrow 2H_{(g)} + O_{(g)}$	$H_2O_{(l)} \rightarrow H_2O_{(s)}$	$2H + O \rightarrow H_2O_{(l)}$
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19.	The reaction $C_2H_4 + 3O_2 \rightarrow 2CO_2 + 2H_2O$ is exothermic because	more bonds are broken than are formed	more bonds are formed than are broken	the energy needed to break the bonds is greater than that released on forming new bonds	the energy needed to break the bonds is less than that released on forming new bonds
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20.	The energy profile diagram for the reaction between hydrogen and chlorine is shown.  What information about the type of reaction and the sign of enthalpy change (ΔH) does the diagram show?	endothermic and negative ΔH	endothermic and positive ΔH	exothermic and negative ΔH	exothermic and positive ΔH
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OR	What are the exothermic reactions? Give an example of exothermic chemical reaction. اگر دھرمک ری ایشن کیا ہوتے ہیں؟ اگر دھرمک کیمائی ری ایشن کی ایک مثال دے۔	1+2
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(xi)	Calculate the enthalpy: $H_{2(g)} + I_{2(g)} \rightarrow 2HI_{(g)}$ $\Delta H^\circ = ?$ Bond energies: $H-H=436 \text{ kJ/mol}$ $I-I=151 \text{ kJ/mol}$ $H-I=299 \text{ kJ/mol}$	03
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OR	Draw a labeled general pathway sketch of an uncatalyzed exothermic reaction.	03
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First Annual 2025 | Section B Q2(xi) OR | 3 marks

OR	What are the endothermic reactions? Give an example of endothermic chemical reaction.	1+2
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Second Annual 2025 | Section B Q2(iv) OR | 3 marks

OR	Draw and label reaction pathway diagram of an exothermic or endothermic reaction showing activation energy, reactants and products.	03
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Second Annual 2025 | Section B Q2(x) OR | 3 marks

OR	What kind of reaction occurs in respiration? Give its reaction.	1+2
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First Annual 2026 | Section A Q4 | 1 mark

4.	Dissolving ammonium nitrate in water causes the container to feel cold. This shows the process is:	Neutralization	Exothermic	Endothermic	Combustion
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First Annual 2026 | Section B Q2(iv) OR | 3 marks

1+1 +1	OR	Briefly describe: a. How a catalyst affects the reaction rate? b. How a catalyst affects the activation energy?	1+2
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First Annual 2026 | Section B Q2(vi) | 3 marks

(vi)	Using the bond energies given below, calculate the enthalpy change (ΔH) for the reaction: $H_2 + Cl_2 \rightarrow 2HCl$ Bond energies: H-H = 436 kJ/mol, Cl-Cl = 242 kJ/mol and H-Cl = 431 kJ/mol
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First Annual 2026 | Section B Q2(ii) OR | 3 marks

1.5 + 1.5	OR	Which type of reaction has a positive sign of enthalpy change? Give one example for that reaction.	1+2
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First Annual 2026 | Section B Q2(iv) OR | 3 marks

	What is meant by activation energy? How does a catalyst affect the activation energy of a reaction?	2+1
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First Annual 2026 | Section B Q2(iv) | 3 marks

(iv)	What is activation energy? What is meant by a successful collision in a chemical reaction?	2+1
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Q.5	a. What is meant by exothermic reaction and endothermic reactions? b. Calculate the enthalpy change (ΔH) for given reaction. $H_{2(g)} + F_{2(g)} \rightarrow 2HF_{(g)}$ Bond energy values for H-H, F-F and H-F bonds are 436 kJ/mol, 155 kJ/mol and 567 kJ/mol.	(1.5 + 1.5) +3
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(viii)	What is the usual effect of an exothermic reaction on the temperature of the surroundings?	Temperature decreases	Temperature remains the same	Temperature increases	Temperature becomes zero	○ ○ ○
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(i)	a. What type of energy change occurs during bond breaking? Name the process. b. Write one difference between bond breaking and bond making in terms of energy change.	1+2
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OR	How does the energy profile diagram for an endothermic reaction differ from that of an exothermic reaction in terms of activation energy and enthalpy change?	1.5+1.5
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Differentiate exothermic and endothermic reactions with one example each.	1.5 + 1.5
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student has 0.5 moles of NaCl. Calculate the mass NaCl in the sample. ایک طالب علم کے پاس 0.5 مول موجود ہیں۔ اس میں NaCl کا ماس معلوم کریں۔	03	OR	Given the bond energies below, find the enthalpy change (ΔH) for the reaction: $H_{2(g)} + I_{2(g)} \rightarrow 2HI_{(g)}$ درجہ بانڈ انرجیز کی مدد سے درجہ رد عمل کے لیے (ΔH) معلوم کریں: H-H = 436 kJ/mol I-I = 151 kJ/mol H-I = 299 kJ/mol
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