

APOLLO

Physics of Solids

FBISE Physics Class 11 (HSSC-I)

Domain B: Mechanics

21 questions | questions

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

15.	A cable has a cross-sectional area of 0.025m^2 . Calculate the stress it experiences when supporting a load of $5 \times 10^5\text{N}$.	$2 \times 10^7\text{N/m}^2$	$2 \times 10^5\text{N/m}^2$	$2.5 \times 10^7\text{N/m}^2$	$2.5 \times 10^5\text{N/m}^2$	☐ ☐ ☐ ☐
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16.	Two wires are identical having same length and same material. Wire A has twice the cross-sectional area of wire B. If same stretching force is applied to both wires, which statement correctly describes the deformation?	Wire A is stretched more	Wire B is stretched more	Both wires are stretched equally	Neither of the wires is stretched	☐ ☐ ☐ ☐
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19.	Which statement is true about glassy solids?	they have regular geometric shapes	they lack translational symmetry	they are long range ordered materials	they have sharp melting point
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22.	A string is stretched by applying a force until it breaks. Which of the following statements justifies what the area under force-extension graph represents?	Stiffness of the string	Potential energy stored during deformation	Young's modulus	Extension in the string
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25.	Which of the following correctly pairs elastic deformation with plastic deformation ? (elastic; plastic)	Permanent; Temporary	Irreversible; Reversible	Long range; short range	Reversible; Irreversible
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(iv)	Differentiate between crystalline solids and amorphous solids. (Give at least three differences.)	03
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OR	What is meant by elastic potential energy? Find a relation for the elastic potential energy of a material.	1+6
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First Annual 2025 | Section B Q2(ix) OR | 3 marks

OR	Briefly describe the terms, <i>stress</i> , <i>strain</i> and <i>Young's modulus</i> .	03
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Second Annual 2025 | Section B Q2(v) | 3 marks

(v)	What is meant by elastic potential energy? Give its mathematical form.	2+1	OR	A projectile is launched horizontally from the top of a 50 m high cliff and lands at a distance of 20 m from the base of the cliff. Determine the magnitude of the	03
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Second Annual 2025 | Section B Q2(viii) | 3 marks

(viii)	Briefly describe the elastic deformation and plastic deformation.	03	OR	Calculate the electric field intensity at a distance of 0.5 m from a point charge of 2×10^{-6} C in a vacuum.	03
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Second Annual 2025 | Section B Q2(xiv) | 3 marks

(xiv)	Distinguish between crystalline and amorphous solids.	1.5+ 1.5
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First Annual 2026 | Section B Q2(ii) OR | 3 marks

03	OR	Distinguish between the terms elastic deformation and plastic deformation.	03
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First Annual 2026 | Section B Q2(vi) | 3 marks

(vi)	Derive the relationship $P.E = \frac{1}{2} \left[\frac{YA}{L} \right] x^2$	03
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First Annual 2026 | Section B Q2(ii) | 3 marks

(ii)	Give Comparison of amorphous and polymeric solids. (Three points)	1x3
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First Annual 2026 | Section B Q2(vi) | 3 marks

(vi)	Briefly explain brittle and ductile materials. (In context of elastic and plastic deformation)	1.5 +1.5	OR	State first law of thermodynamics. Discuss its significance.
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First Annual 2026 | Section B Q2(xi) | 3 marks

(xi)	Briefly describe: a. Unit cell and its types b. Crystal lattice	2+1
(xii)	What is a light dependent resistor (LDR)? Why is LDR	

First Annual 2026 | Section C Q4 OR | 6 marks

OR	Briefly explain Elastic Potential Energy. Derive its mathematical formula.	2+4
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FBISE model paper | Section A Q1(vi) | 1 mark

vi.	A wire is stretched to double of its original length, its strain is	0.5	1	zero	2
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(ii)	Define crystalline and amorphous solid.	03
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(ix)	Two tuning forks of frequencies 456 Hz and 452 Hz are sounded together. How many beats are produced over a period of 10 second?	03	OR	A 40 kg mass is supported by 5 m long aluminium wire ($Y_A=7 \times 10^{10}$ Pa). To have same elongation in a copper wire of the same length under the same weight, find the diameter of copper wire. ($Y_C=12 \times 10^{10}$ Pa)	03
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(vi)	Explain the stress strain curve for ductile material.	03
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