Question 1:

'A 10-N force at an angle 45° above the horizontal has a horizontal component of about', A. '7 N', B. '5 N', C. '10 N', D. '12 N'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 2:

'A completely submerged object always displaces its own', A. 'weight of fluid.', B. 'volume of fluid.', C. 'density of fluid.', D. 'All of these.'

==========

Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

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Answer Option 3:

Final Answer: B

****

Answer Option 4:

Final Answer: B

****

Answer Option 5:

Final Answer: B

****

Answer Option 6:

Final Answer: B

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Answer Option 7:

Final Answer: B

****

Answer Option 8:

Final Answer: B

****

Answer Option 9:

Final Answer: B

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Question 3:

'When a diver points a flashlight upward toward the surface of the water at an angle 20° from the normal, the beam of light', A. 'totally internally reflects', B. 'passes into the air above', C. 'is absorbed', D. 'None of these'

==========

Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

****

Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

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Answer Option 9:

Final Answer: A

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Question 4:

'According to four-dimensional geometry, the angles of a triangle add to 180°', A. 'always.', B. 'sometimes.', C. 'never.', D. 'on planet Earth only.'

==========

Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: C

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Answer Option 3:

Final Answer: C

****

Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

****

Answer Option 7:

Final Answer: A

****

Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: C

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Question 5:

'A voltage will be induced in a wire loop when the magnetic field within that loop', A. 'changes', B. 'aligns with the electric field', C. 'is at right angles to the electric field', D. 'converts to magnetic energy'

==========

Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

****

Answer Option 3:

Final Answer: A

****

Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

****

Answer Option 8:

Final Answer: A

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Answer Option 9:

Final Answer: A

****

Question 6:

'Among these colors, the one that has the most energy per photon is', A. 'red', B. 'yellow-green', C. 'blue', D. 'violet'

==========

Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

****

Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

****

Answer Option 7:

Final Answer: D

****

Answer Option 8:

Final Answer: D

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Answer Option 9:

Final Answer: D

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Question 7:

'According to general relativity,', A. 'mass distorts spacetime.', B. 'gravity affects clocks.', C. 'light can’t escape from a black hole.', D. 'All of these.'

==========

Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

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Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

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Answer Option 7:

Final Answer: D

****

Answer Option 8:

Final Answer: D

****

Answer Option 9:

Final Answer: D

****

Question 8:

'A step-up transformer in an electric circuit can step up', A. 'voltage', B. 'energy', C. 'Both of these', D. 'Neither of these'

==========

Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 9:

'Spectral lines of the elements are', A. 'chaotic', B. 'ordered', C. 'positioned by amplitude', D. 'in phase'

==========

Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

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Answer Option 3:

Final Answer: B

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Answer Option 4:

Final Answer: B

****

Answer Option 5:

Final Answer: B

****

Answer Option 6:

Final Answer: B

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Answer Option 7:

Final Answer: B

****

Answer Option 8:

Final Answer: B

****

Answer Option 9:

Final Answer: B

****

Question 10:

'A wave transfers', A. 'amplitude', B. 'wavelength', C. 'frequency', D. 'energy'

==========

Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

****

Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

****

Answer Option 7:

Final Answer: D

****

Answer Option 8:

Final Answer: D

****

Answer Option 9:

Final Answer: D

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Question 11:

'Immediately after two separated charged particles are released from rest, both increase in acceleration. The sign of charge of the particles is therefore', A. 'the same', B. 'opposite', C. 'Either of these', D. 'Need more information'

==========

Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: B

****

Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: B

****

Answer Option 7:

Final Answer: A

****

Answer Option 8:

Final Answer: B

****

Answer Option 9:

Final Answer: A

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Question 12:

'The surface of planet Earth loses energy to outer space due mostly to', A. 'conduction', B. 'convection', C. 'radiation', D. 'radioactivity'

==========

Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

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Answer Option 3:

Final Answer: C

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Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

****

Answer Option 7:

Final Answer: C

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Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: C

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Question 13:

'In a series circuit, if the current in one lamp is 2 A, the current in the lamp next to it is', A. 'half, 1 A', B. '2 A', C. 'Depends on which lamp is closer to the battery', D. 'Not enough information to say'

==========

Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

****

Answer Option 3:

Final Answer: B

****

Answer Option 4:

Final Answer: B

****

Answer Option 5:

Final Answer: B

****

Answer Option 6:

Final Answer: B

****

Answer Option 7:

Final Answer: B

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Answer Option 8:

Final Answer: B

****

Answer Option 9:

Final Answer: B

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Question 14:

'As a blinking light source approaching you gains speed, you see the frequency of flashes', A. 'increase.', B. 'decrease.', C. 'remain unchanged.', D. 'None of these.'

==========

Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 15:

'In the absence of air resistance a ball of mass m is tossed upward to reach a height of 20 m. At the 10-m position half way up the net force on the ball is', A. '2mg', B. 'mg', C. 'mg/2', D. 'mg/4'

==========

Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

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Answer Option 3:

Final Answer: B

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Answer Option 4:

Final Answer: B

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Answer Option 5:

Final Answer: B

****

Answer Option 6:

Final Answer: B

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Answer Option 7:

Final Answer: B

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Answer Option 8:

Final Answer: B

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Answer Option 9:

Final Answer: B

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Question 16:

'Pumice is a volcanic rock that floats in water. The density of pumice compared with that of water is', A. 'less.', B. 'equal.', C. 'greater.', D. 'none because it sinks.'

==========

Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

****

Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

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Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 17:

'When you look at the red petals of a rose the color light you're seeing is', A. 'red.', B. 'green.', C. 'white minus red.', D. 'a mixture of green and yellow.'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

****

Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 18:

'Compared with the sound you hear from the siren of a stationary fire engine the sound you hear when it approaches you has an increased', A. 'speed', B. 'frequency', C. 'wavelength', D. 'All of these'

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Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

****

Answer Option 3:

Final Answer: B

****

Answer Option 4:

Final Answer: B

****

Answer Option 5:

Final Answer: B

****

Answer Option 6:

Final Answer: B

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Answer Option 7:

Final Answer: B

****

Answer Option 8:

Final Answer: B

****

Answer Option 9:

Final Answer: B

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Question 19:

'When you squeeze an air-filled party balloon, you increase its', A. 'volume', B. 'mass', C. 'weight', D. 'density'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

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Answer Option 5:

Final Answer: D

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Answer Option 6:

Final Answer: D

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Answer Option 7:

Final Answer: D

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Answer Option 8:

Final Answer: D

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Answer Option 9:

Final Answer: D

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Question 20:

'Polarization is a property of', A. 'transverse waves', B. 'longitudinal waves', C. 'all waves', D. 'None of these'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

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Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

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Answer Option 9:

Final Answer: A

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Question 21:

'In a vacuum, an object has no', A. 'buoyant force', B. 'mass', C. 'weight', D. 'All of these'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

****

Answer Option 4:

Final Answer: D

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Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

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Answer Option 7:

Final Answer: D

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Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: D

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Question 22:

'Temperature is generally proportional to a substance's', A. 'thermal energy.', B. 'vibrational kinetic energy.', C. 'average translational kinetic energy.', D. 'rotational kinetic energy.'

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Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

****

Answer Option 3:

Final Answer: C

****

Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

****

Answer Option 7:

Final Answer: C

****

Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: C

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Question 23:

'In a hydraulic press operation, the output piston cannot', A. 'move farther than the input piston', B. 'exceed the force input', C. 'exceed the input piston's speed', D. 'produce increased energy'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

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Answer Option 5:

Final Answer: D

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Answer Option 6:

Final Answer: D

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Answer Option 7:

Final Answer: D

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Answer Option 8:

Final Answer: D

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Answer Option 9:

Final Answer: D

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Question 24:

'When a spinning system contracts in the absence of an external torque its rotational speed increases and its angular momentum', A. 'decreases', B. 'increases', C. 'remains unchanged', D. 'may increase or decrease'

==========

Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

****

Answer Option 3:

Final Answer: C

****

Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

****

Answer Option 7:

Final Answer: C

****

Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: C

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Question 25:

'According to Hooke's law, if you hang by a tree branch and note how much it bends, then hanging with twice the weight produces', A. 'half the bend.', B. 'the same bend if the branch doesn't break.', C. 'twice the bend.', D. '4 times the bend.'

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Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

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Answer Option 3:

Final Answer: C

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Answer Option 4:

Final Answer: C

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Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

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Answer Option 7:

Final Answer: C

****

Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: C

****

Question 26:

'When an increase in speed doubles the kinetic energy of a moving body its momentum', A. 'increases but less than doubles', B. 'doubles', C. 'more than doubles', D. 'depends on factors not stated'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

****

Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

****

Answer Option 7:

Final Answer: A

****

Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 27:

'Suppose the number of neutrons in a reactor that is starting up doubles each minute reaching one billion neutrons in 10 minutes. When did the number of neutrons reach half a billion?', A. '1 minute.', B. '2 minutes.', C. '5 minutes.', D. '9 minutes.'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

****

Answer Option 4:

Final Answer: D

****

Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

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Answer Option 7:

Final Answer: D

****

Answer Option 8:

Final Answer: D

****

Answer Option 9:

Final Answer: D

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Question 28:

'If an object is already moving and the sum of all the vector forces on a mass is zero, then the object will', A. 'move at a constant speed in a straight line', B. 'accelerate at a constant rate in a straight line', C. 'come to rest', D. 'increase its amount of inertia'

==========

Answer Option 1:

Final Answer: A

****

Answer Option 2:

Final Answer: A

****

Answer Option 3:

Final Answer: A

****

Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 29:

'Relativity equations for time, length, and momentum hold true for', A. 'everyday low speeds.', B. 'relativistic speeds.', C. 'Both of these.', D. 'Neither of these.'

==========

Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

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Answer Option 3:

Final Answer: C

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Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

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Answer Option 7:

Final Answer: C

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Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: C

****

Question 30:

'Put a saucer of water on your table. A process that then occurs is', A. 'evaporation', B. 'condensation', C. 'Both', D. 'Neither'

==========

Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

****

Answer Option 3:

Final Answer: A

****

Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

****

Answer Option 7:

Final Answer: A

****

Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 31:

'A barometer that uses water instead of mercury will be', A. 'shorter', B. 'taller', C. 'equal in height', D. 'inoperable'

==========

Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

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Answer Option 3:

Final Answer: B

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Answer Option 4:

Final Answer: B

****

Answer Option 5:

Final Answer: B

****

Answer Option 6:

Final Answer: B

****

Answer Option 7:

Final Answer: B

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Answer Option 8:

Final Answer: B

****

Answer Option 9:

Final Answer: B

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Question 32:

'A heavy rock and a light rock in free fall (zero air resistance) have the same acceleration. The heavy rock doesn't have a greater acceleration because the', A. 'force due to gravity is the same on each.', B. 'air resistance is always zero in free fall.', C. 'inertia of both rocks is the same.', D. 'ratio of force to mass is the same.'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

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Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

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Answer Option 7:

Final Answer: D

****

Answer Option 8:

Final Answer: D

****

Answer Option 9:

Final Answer: D

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Question 33:

'When an increase in speed doubles the momentum of a moving body its kinetic energy', A. 'increases but less than doubles', B. 'doubles', C. 'more than doubles', D. 'depends on factors not stated'

==========

Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

****

Answer Option 3:

Final Answer: C

****

Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

****

Answer Option 7:

Final Answer: C

****

Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: C

****

Question 34:

'The equation E = mc^2 indicates that energy', A. 'equals mass moving at the speed of light squared.', B. 'equals moving mass.', C. 'is fundamentally different than mass.', D. 'and mass are closely related.'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

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Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

****

Answer Option 7:

Final Answer: D

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Answer Option 8:

Final Answer: D

****

Answer Option 9:

Final Answer: D

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Question 35:

'General relativity predicts that', A. 'light leaving the Sun is slowed by gravity.', B. 'light passing the Sun is deflected.', C. 'a clock on the Sun's surface runs faster than on Earth.', D. 'All of these.'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

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Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

****

Answer Option 7:

Final Answer: D

****

Answer Option 8:

Final Answer: D

****

Answer Option 9:

Final Answer: D

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Question 36:

'When an element ejects an alpha particle, the atomic number of the resulting element', A. 'reduces by 2', B. 'reduces by 4', C. 'increases by 2', D. 'increases by 4'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

****

Answer Option 3:

Final Answer: A

****

Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

****

Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

****

Answer Option 9:

Final Answer: A

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Question 37:

'As more lamps are connected in parallel in a circuit, the current in the power source', A. 'increases', B. 'decreases', C. 'remains the same', D. 'Not enough information to say'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

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Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

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Answer Option 9:

Final Answer: A

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Question 38:

'An airplane with its nose pointing north with an airspeed of 40 km/h in a 30-km/h crosswind (at right angles) has a groundspeed of', A. '30 km/h', B. '40 km/h', C. '50 km/h', D. '60 km/h'

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Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

****

Answer Option 3:

Final Answer: C

****

Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

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Answer Option 7:

Final Answer: C

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Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: C

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Question 39:

'The energy of an emitted photon is related to its', A. 'amplitude', B. 'polarization', C. 'momentum', D. 'frequency'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

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Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

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Answer Option 7:

Final Answer: D

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Answer Option 8:

Final Answer: D

****

Answer Option 9:

Final Answer: D

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Question 40:

'Thermal conduction involves mainly', A. 'electrons', B. 'protons', C. 'neutrons', D. 'ions'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

****

Answer Option 5:

Final Answer: A

****

Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

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Answer Option 9:

Final Answer: A

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Question 41:

'Compared with the current in an LED lamp the current in the connecting wire is', A. 'less.', B. 'more.', C. 'the same.', D. 'Need more information.'

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Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

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Answer Option 3:

Final Answer: C

****

Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

****

Answer Option 7:

Final Answer: C

****

Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: C

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Question 42:

'Bow waves are produced by waves of water', A. 'overlapping one another', B. 'constructively interfering', C. 'moving slower than the source producing them', D. 'All of these'

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Answer Option 1:

Final Answer: D

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Answer Option 2:

Final Answer: D

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Answer Option 3:

Final Answer: D

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Answer Option 4:

Final Answer: D

****

Answer Option 5:

Final Answer: D

****

Answer Option 6:

Final Answer: D

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Answer Option 7:

Final Answer: D

****

Answer Option 8:

Final Answer: C

****

Answer Option 9:

Final Answer: D

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Question 43:

'The speed of sound is slightly greater on a', A. 'cold day', B. 'hot day', C. 'day with steady temperature', D. 'None of these'

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Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

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Answer Option 3:

Final Answer: B

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Answer Option 4:

Final Answer: B

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Answer Option 5:

Final Answer: B

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Answer Option 6:

Final Answer: B

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Answer Option 7:

Final Answer: B

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Answer Option 8:

Final Answer: B

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Answer Option 9:

Final Answer: B

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Question 44:

'Consider two mercury barometers, one having a cross-sectional area of 1 cm2 and the other 2 cm2. The height of mercury in the narrower tube is', A. 'half', B. 'twice', C. 'the same', D. 'None of these'

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Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

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Answer Option 3:

Final Answer: C

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Answer Option 4:

Final Answer: C

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Answer Option 5:

Final Answer: C

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Answer Option 6:

Final Answer: C

****

Answer Option 7:

Final Answer: C

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Answer Option 8:

Final Answer: C

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Answer Option 9:

Final Answer: C

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Question 45:

'The second law of thermodynamics tells us that heat doesn't flow from', A. 'hot to cold ever', B. 'cold to hot ever', C. 'hot to cold without external energy', D. 'cold to hot without external energy'

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Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

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Answer Option 3:

Final Answer: B

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Answer Option 4:

Final Answer: B

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Answer Option 5:

Final Answer: B

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Answer Option 6:

Final Answer: B

****

Answer Option 7:

Final Answer: B

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Answer Option 8:

Final Answer: B

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Answer Option 9:

Final Answer: B

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Question 46:

'In a mixture of hydrogen oxygen and nitrogen gases at a given temperature the molecules having the greatest average speed are those of', A. 'hydrogen.', B. 'oxygen.', C. 'nitrogen.', D. 'But all have the same speed on average.'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

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Answer Option 5:

Final Answer: A

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Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

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Answer Option 9:

Final Answer: A

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Question 47:

'Compared with the power input, the power output of an ideal transformer is', A. 'greater', B. 'less', C. 'the same', D. 'Any of these'

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Answer Option 1:

Final Answer: C

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Answer Option 2:

Final Answer: C

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Answer Option 3:

Final Answer: C

****

Answer Option 4:

Final Answer: C

****

Answer Option 5:

Final Answer: C

****

Answer Option 6:

Final Answer: C

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Answer Option 7:

Final Answer: C

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Answer Option 8:

Final Answer: C

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Answer Option 9:

Final Answer: C

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Question 48:

'The amount of air drag on an 0.8-N flying squirrel dropping vertically at terminal velocity is', A. 'less than 0.8 N', B. '0.8 N', C. 'greater than 0.8 N', D. 'dependent on the orientation of its body'

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Answer Option 1:

Final Answer: B

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Answer Option 2:

Final Answer: B

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Answer Option 3:

Final Answer: B

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Answer Option 4:

Final Answer: B

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Answer Option 5:

Final Answer: B

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Answer Option 6:

Final Answer: B

****

Answer Option 7:

Final Answer: B

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Answer Option 8:

Final Answer: B

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Answer Option 9:

Final Answer: B

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Question 49:

'The vibrations in a longitudinal wave move in a direction', A. 'along and parallel to the wave', B. 'perpendicular to the wave', C. 'Both of these', D. 'Neither of these'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

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Answer Option 5:

Final Answer: A

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Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

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Answer Option 9:

Final Answer: A

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Question 50:

'The potential energy of a compressed spring and the potential energy of a charged object both depend on', A. 'the work done on them', B. 'motion', C. 'Both of these', D. 'Neither of these'

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Answer Option 1:

Final Answer: A

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Answer Option 2:

Final Answer: A

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Answer Option 3:

Final Answer: A

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Answer Option 4:

Final Answer: A

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Answer Option 5:

Final Answer: A

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Answer Option 6:

Final Answer: A

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Answer Option 7:

Final Answer: A

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Answer Option 8:

Final Answer: A

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Answer Option 9:

Final Answer: A

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