Master the MCAT Physics with Comprehensive Mnemonic Quick Review Notes

The Medical College Admission Test (MCAT) is a standardized exam that is required for admission to medical school in the United States and Canada. The exam is divided into four sections: Biological and Biochemical Foundations of Living Systems, Chemical and Physical Foundations of Biological Systems, Psychological, Social, and Biological Foundations of Behavior, and Critical Analysis and Reasoning Skills. The Physics section of the MCAT covers topics such as mechanics, waves, optics, electricity and magnetism, and thermodynamics.

Preparing for the MCAT Physics section can be a daunting task, but using mnemonics can help you to remember key concepts and formulas. Mnemonics are memory aids that use patterns or associations to help you recall information. In this article, we will provide you with a comprehensive list of MCAT Physics mnemonics that will help you to ace your exam.

- **Newton's Laws of Motion:**

MCAT Physics Mnemonics (Quick Review Notes)

★★★★★ 5 out of 5

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- **F = ma** (First law: Force equals mass times acceleration)

- **F = -kx** (Second law: Force equals negative spring constant times displacement)

- **F = mv^2/r** (Third law: Force equals mass times velocity squared divided by radius)

- **Projectile Motion:**

  - **Vxf = Vxi + at** (Horizontal velocity is equal to initial horizontal velocity plus acceleration due to gravity times time)

  - **Vyf = Vyi + at** (Vertical velocity is equal to initial vertical velocity plus acceleration due to gravity times time)

  - **y = Vit + 1/2at^2** (Vertical displacement is equal to initial vertical velocity times time plus 1/2 acceleration due to gravity times time squared)

- **Circular Motion:**

  - **v = 2πrf** (Velocity is equal to 2π times radius times frequency)

  - **a = v^2/r** (Centripetal acceleration is equal to velocity squared divided by radius)

- **Types of Waves:**

  - **Transverse waves:** Vibrations are perpendicular to the direction of wave propagation

- **Longitudinal waves:** Vibrations are parallel to the direction of wave propagation

- **Wave Properties:**

  - **Amplitude:** Maximum displacement of the wave

  - **Wavelength:** Distance between two consecutive crests or troughs

  - **Frequency:** Number of waves that pass a given point per unit time

- **Wave Speed:**

  - **$v = f\lambda$** (Wave speed is equal to frequency times wavelength)

- **Reflection and Refraction:**

  - **$n_1\sin\theta_1 = n_2\sin\theta_2$** (Snell's law: Index of refraction of medium 1 times sine of angle of incidence equals index of refraction of medium 2 times sine of angle of refraction)

- **Thin Lenses:**

  - **$1/f = 1/d_o + 1/d_i$** (Thin lens equation: Inverse of focal length is equal to the inverse of object distance plus the inverse of image distance)

  - **$M = h_i/h_o = -d_i/d_o$** (Magnification: Ratio of image height to object height is equal to the negative of image distance divided by object distance)

- **Interference:**

- **Constructive interference:** Waves combine to produce a larger amplitude

- **Destructive interference:** Waves combine to produce a smaller amplitude

- **Electric Charge:**

  - **Q = ne** (Electric charge is equal to the number of electrons times the elementary charge)

- **Electric Field:**

  - **E = kQ/r^2** (Electric field is equal to Coulomb's constant times charge divided by the distance squared)

- **Magnetic Field:**

  - **B = μ0I/2πr** (Magnetic field is equal to the permeability of free space times current divided by 2π times the distance)

- **Electromagnetic Induction:**

  - **ε = -dΦ/dt** (Electromotive force is equal to the negative of the time derivative of magnetic flux)

- **Laws of Thermodynamics:**

  - **First law:** Energy cannot be created or destroyed, only transferred or transformed

  - **Second law:** Entropy of an isolated system always increases

 - **Third law:** Entropy of a perfect crystal at absolute zero is zero

- **Heat Transfer:**

  - **Q = mcΔT** (Heat transfer is equal to mass times specific heat times change in temperature)

- **Specific Heat:**

  - **c = Q/mΔT** (Specific heat is equal to heat transfer divided by mass times change in temperature)

Mnemonics can be a powerful tool for remembering key concepts and formulas for the MCAT Physics section. By using the mnemonics provided in this article, you will be well on your way to acing your exam.
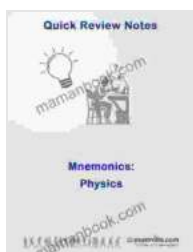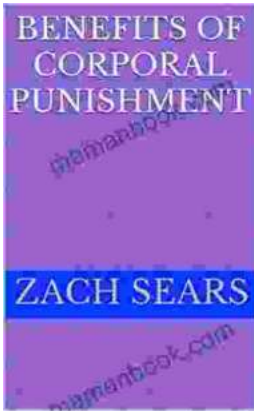
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