The Wave Nature of Light and Revolutions in Modern Physics — Practice Test

Ontario Physics, Grade 12, University Preparation (SPH4U) • 10 questions

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1 **Stopping potential in a photoelectric experiment measures the maximum kinetic energy of emitted**

- A Protons
- B Photons
- C Electrons
- D Ions

Understand It with Pulse | Flag a mistake

2 **Compton scattering shows photons can transfer momentum to electrons, supporting the**

A Particle model of light

B Bohr model only

C Wave model only

D Classical model

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3 **An electron can produce an interference pattern like a wave, and it can also be detected as a single particle. This shows that matter has**

A Only wave behaviour

B Both wave and particle behaviour

C Neither behaviour

D Only particle behaviour

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4 **An electron microscope uses electrons because their wavelength can be much shorter than that of**

- A Gamma rays
- B Visible light
- C Radio waves
- D Sound

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5 **Relativistic momentum increases without limit as speed approaches the speed of**

- A An electron
- B Sound
- C A rocket
- D Light

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6 **A muon reaching Earth surface despite its short lifetime is explained by time dilation in the muon**

- A Decay
- B Rest frame only
- C Absence
- D Frame relative to Earth

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7 **The photoelectric effect cannot be explained by the classical wave model because electron emission depends on**

- A Intensity only
- B Temperature
- C Time of exposure only
- D Frequency

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8 **Spectral lines of hydrogen in the visible region form the**

A Brackett series

B Paschen series

C Balmer series

D Lyman series

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9 **An atom in its ground state has its electrons in the lowest available**

A Energy levels

B Speeds

C Orbits in space

D Shells only

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10 **Nuclear fission splits a heavy nucleus into smaller nuclei and releases**

A Energy

B Protons only

C Only light

D Electrons only

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ANSWER KEY

1.	C	**5.**	D	**9.**	A
2.	A	**6.**	D	**10.**	A
3.	B	**7.**	D		
4.	B	**8.**	C		

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