COURSE REVIEW

52 Marks Total

Part One: Unit A – Momentum and Impulse

Part One of this assignment is worth 18 marks. The value of each question is noted in parentheses in the left margin. **Note:** The answer areas will expand to fit the length of your response.

(2) **1.** What characteristics of an object affect its momentum?

Answer:

(2) **2.** How are momentum and impulse related?

Answer:

(4) **3.** What is the difference between a perfectly elastic collision and a perfectly inelastic collision?

Answer:

(2) **4.** What is the difference between a scalar and a vector quantity?

Answer:

(2) **5.** How is momentum related to Newton's laws?

Answer:

(2) **6.** How is impulse related to Newton's laws?

Answer:

(2) **7.** What is the law of conservation of momentum?

Answer:

(2) 8. Describe how crumple zones in vehicles serve to increase the safety of the occupants.

Answer:

Part Two: Unit B – Forces and Fields

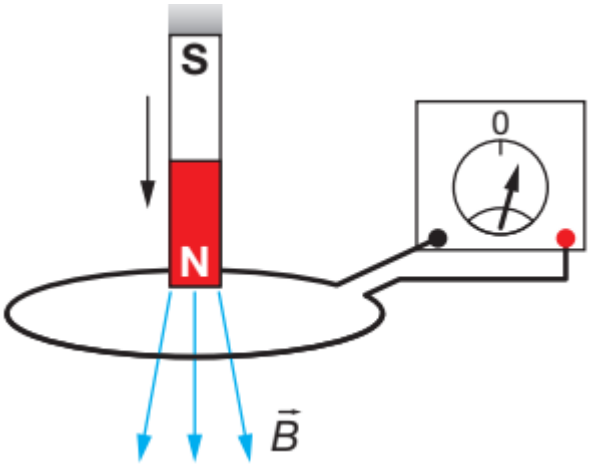
Part Two of this assignment is worth 13 marks. The value of each question is noted in parentheses in the left margin. Note: The answer areas will expand to fit the length of your response.

(3) **1.** What is the difference between an electrical insulator and an electrical conductor? Provide an example of each.

Answer:

Use the information below to answer question 2.

A bar magnet pushed into a loop increases the flux through the loop and induces a current to flow.



(3) 2. Assuming conventional current, explain how you determine the direction (clockwise or counter clockwise) of the induced current. You may use a diagram if you wish.

Answer:

(3) **3.** Describe, in detail, how a moving charge is be affected by a magnetic field.

Answer:

(2) **4.** How are current-carrying conductors affected by magnetic fields? You may use a sketch if you wish.

Answer:

(2) **5.** How is electric potential energy similar to gravitational potential energy?

Answer:

Part Three: Unit C – Electromagnetic Radiation

Part Three of this assignment is worth 10 marks. The value of each question is noted in parentheses in the left margin. Note: The answer areas will expand to fit the length of your response.

(2) **1.** In what ***circumstances*** does the photoelectric effect occur?

Answer:

(2) **2.** What did Maxwell's electromagnetic theory predict?

Answer:

(3) **3.** Describe how polarizing filters work and give one example of where they might be used.

Answer:

(3) **4.** How does the photoelectric effect support the notion of wave-particle duality? You may use a diagram to support your response.

Answer:

Part Four: Unit D – Atomic Physics

Part Four of this assignment is worth 11 marks. The value of each question is noted in parentheses in the left margin. Note: The answer areas will expand to fit the length of your response.

(2) **1.** Explain how the discovery of cathode rays contributed to the development of atomic models.

Answer:

(2) **2.** Explain how electron diffraction provides experimental support for the de Broglie hypothesis.

Answer:

(2) **3.** A neutron decays into a proton and an electron. Write the decay reactions of a neutron using both nucleons and quarks. You will need to show two reactions.

Answer:

(3) **4.** Compare and contrast the characteristics of fission and fusion reactions.

Answer:

(2) **5.** How is the conservation of energy and mass applied to nuclear decay?

Answer:

When you have completed all of the questions in this assignment, submit your work.