ASM TUITION ACADEMY

PHYSICS

YEAR 8

TOPIC: WHAT IS THE MOTOR EFFECT?

TEST QUESTIONS

TOTAL MARKS: 55

TIME: 45 MINUTES

Section A: Multiple-Choice Questions

Q1. What happens when two magnets are moved close enough for their magnetic fields to overlap? [1]

A. Their magnetic fields interact
B. Their mass changes
C. Their temperature decreases
D. Their electric current stops

Q2. The interaction between two magnetic fields can produce which type of force? [1]

A. Only friction
B. Only contact force
C. Attraction or repulsion
D. Only gravity

Q3. What happens when the switch in the motor-effect experiment is closed? [1]

A. Current stops flowing
B. Current flows through the wire
C. The battery disappears
D. The magnet loses its mass

Q4. What happens to the wire when the switch is closed in the experiment described? [1]

A. It instantly jumps
B. It melts immediately
C. It becomes stationary forever
D. It changes into a magnet permanently

Q5. What is the motor effect? [1]

A. The heating of a wire by current
B. Motion caused by the interaction between a permanent magnet and an electromagnet

C. The attraction between two objects due to gravity
D. The production of sound by a battery

Q6. What becomes an electromagnet in an electric motor? [1]

A. The battery
B. The axle support
C. The coil carrying electric current
D. The permanent magnet

Q7. What produces forces on the coil in an electric motor? [1]

A. The interaction between the coil's magnetic field and the magnets' field
B. The weight of the battery only
C. Friction between the axle and the air
D. The colour of the coil

Q8. What happens when upward and downward forces act on opposite sides of the coil? [1]

A. The coil stops permanently
B. The coil rotates
C. The coil loses its magnetic field
D. The battery becomes an insulator

Q9. What is the main function of an electric motor? [1]

A. To create rotation
B. To store food
C. To produce water
D. To measure temperature

Q10. Which household appliance contains an electric motor? [1]

A. Electric fan
B. Glass cup
C. Wooden ruler
D. Candle

Section B: Fill in the Blanks

Q11. When magnetic fields overlap, they can _____ with each other. [1]

Q12. Magnetic interactions can produce attractive or _____ forces. [1]

Q13. An electric current flows through the wire when the switch is _____. [1]

Q14. The motor effect involves a permanent magnet and an _____. [1]

Q15. In an electric motor, the coil becomes an _____ when current flows through it. [1]

Q16. The magnetic field of the coil interacts with the magnetic field produced by the _____. [1]

Q17. An _____ force acts on the left side of the coil in the diagram described. [1]

Q18. A _____ force acts on the right side of the coil in the diagram described. [1]

Q19. The forces on opposite sides of the coil make it _____ clockwise. [1]

Q20. The main function of an electric motor is to create _____. [1]

Section C: Short-Answer Questions

Q21. Explain what happens when the magnetic fields of two magnets overlap. [3]

Q22. Describe the motor-effect experiment when the switch is closed. [4]

Q23. Define the motor effect and identify the two magnetic fields or magnetic sources involved. [4]

Q24. Explain how a coil in an electric motor becomes an electromagnet. [4]

Q25. Describe how the magnetic fields interact to produce forces on the coil of an electric motor. [4]

Q26. Explain why the coil rotates clockwise in the electric motor diagram described in the notes. [4]

Q27. What is the function of an electric motor? Name two household appliances that contain an electric motor. [4]

Q28. Explain the role of the upward force on the left side and the downward force on the right side of the coil. [4]

Q29. Describe how an electric motor converts the interaction of magnetic fields into rotational motion. [4]