

## Worksheet: Electromagnetic Induction

Bihar State Board · Class 12 · Physics · 5 questions · 12 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 12

**Q1.** A  $0.1 \text{ m}^2$  loop perpendicular to a  $0.5 \text{ T}$  field has the field reduced to zero in  $0.01 \text{ s}$ . Find the induced emf. [2 marks]

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**Q2.** A  $10 \text{ mH}$  inductor's current changes from  $5 \text{ A}$  to  $1 \text{ A}$  in  $0.02 \text{ s}$ . Find the induced emf. [2 marks]

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**Q3.** A solenoid of length  $0.5 \text{ m}$ , area  $4 \times 10^{-4} \text{ m}^2$ , and  $1000$  turns. Find its self-inductance. [3 marks]

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**Q4.** An AC generator has  $200$  turns, area  $0.05 \text{ m}^2$ , field  $0.2 \text{ T}$ , rotating at  $50 \text{ rad/s}$ . Find peak and rms emf. [3 marks]

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**Q5.** Two coils have  $M = 0.05 \text{ H}$ . If the primary current changes from  $4 \text{ A}$  to  $1 \text{ A}$  in  $0.01 \text{ s}$ , find the secondary emf. [2 marks]

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