Step Academy official

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STUDENT NAME	
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CLASS	New 1st Year (FSC/ICS)
SUBJECT	Physics
TOTAL MARKS	25
Paper Type	

Q2. Choose the correct answer. **25X1=25**

1. The radius of curvature of the path of a charged particle in a uniform magnetic field is directly proportional to:

(A) The particle's charge **(B)** The particle's momentum **(C)** The particle's energy **(D)** The flux density of the field

2. The unit of flux density is:

(A) $NA^{-1} m^{1}$ **(B)** NAm^{-1} **(C)** NmA^{-2} **(D)** NmA

3. Magnetic force on the charge q moving parallel to magnetic field with velocity v is:

(A) qv B sinq **(B)** qvB **(C)** Zero **(D)** ILB

4. The unit $NA^{-1} m^{-1}$ is called:

(A) Weber **(B)** Tesha **(C)** COulomb **(D)** None of these

5. Lenz's law is in accordance with law of conservation of:

(A) Mass **(B)** Momentum **(C)** Charg **(D)** ENERGY

6. The Lenz's law refers to:

(A) Induced current **(B)** Induced potential **(C)** Motional emf **(D)** All of these

7. The direction of induced current is always so as to oppose the change which causes the current is:

(A) Faraday's law **(B)** Lenz's law **(C)** Ohm's law **(D)** Kirchoff's law

8. The motional emf is given by:

(A) qvB **(B)** iBL **(C)** eBL **(D)** vBL

9. Lenz's law is related to the:

(A) Conservation of momentum **(B)** Conservation of mass **(C)** Conservation of charge **(D)** Conservation of energy

10. Lenz's law ensures that:

(A) The induced emf is zero **(B)** The induced emf supports the change in magnetic **(C)** The total energy is conserved **(D)** There is no magnetic force

11. According to Faraday's law, emf can be induced by:

(A) Changing area of the coil **(B)** Changing magnetic field strength **(C)** Rotating the coil in magnetic field **(D)** All of these

12. Electric current producing magnetic field was discovered by:

(A) Faraday **(B)** Maxwell **(C)** Oersted **(D)** Lenz

13.
Maximum motional emf in a conductor is given by VBI. At which angle the conductor moves in magnetic field such that emf in it becomes half then its maximum value is:

(A) 0^o **(B)** 30^o **(C)** 45^o **(D)** 60^o

14. Ferrofluids are typically composed of:

(A) Mercury mixed with graphite **(B)** Iron filings in water **(C)** Melted magnets **(D)** Suspended nano-magnetic particles in a carrier fluid

15. Which of the following is a common application of ferrofluids?

(A) Sealing hard drives **(B)** Cooling computer chips **(C)** Magnetic resonance imaging (MRI **(D)** Fuel additives in diesel engines

16. In the absence of magnetic field, a ferrofluid behaves like a:

(A) Soild **(B)** Plasma **(C)** Gas **(D)** REgular liquid

17. Which force balance the magnetic attraction to prevent ferrofluids from settling?

(A) Buoyant force **(B)** Brownian motion **(C)** Electrostatic repulsion **(D)** Gravitational pull

18. What type of energy does a seismometer detect?

(A) Electrical energy **(B)** Sound energy **(C)** Thermal energy **(D)** Seismic energy

19. Why are seismometers often placed underground?

(A) To increase their sensitivity to heat **(B)** To protect them from rain **(C)** To reduce surface noise and vibration interference **(D)** To keep them cool

20. Which type of seismic wave reaches a seismometer first during an earthquake?

(A) Surface waves **(B)** S-waves (secondary waves) **(C)** L-waves (long waves) **(D)** P-waves (primary waves)

21. A digital seismometer records seismic activity by converting motion into:

(A) sound wavea **(B)** Electrical signals **(C)** Chemical Waves **(D)** Light Pulses

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24. What aspect of an earthquake can seismometers help to determine?

(A) Colour of soil **(B)** Rainfall levels **(C)** Time of day only **(D)** Depth and magnitude

25. Seismometers can detect seismic activity from how far away?

(A) Only within 100 km **(B)** Only with 10 km **(C)** Only on the same continent **(D)** From anywhere on the Earth