PROFESSORS ACADEMY TIBBA SULTANPUR

PARAGON SCHOOL WARD NUMBER 3 BEHIND GOVT HIGHER SECONDARY SCHOOL (BOYS) TIBBA SULTANPUR

Student Name	Roll Number	Class Name	Paper Code
		INTER-I	7289

Subject Name	Time Allowed	Total Marks	Exam Date
Physics		69	05-Feb-2026

Q1. Choose the correct answer. (1 x 69 = 69)

1. A current is flowing towards north along a power line. The direction of the magnetic field over the wire is directed towards:

   (A) North   (B) South   (C) East   (D) West

2. Electrons while moving perpendicularly through a uniform magnetic field are:

   (A) Deflected towards north pole   (B) Deflected towards south pole   (C) Deflected along circular path   (D) Not deflected at all

3. The unit of flux density is:

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

4. The force exerted on a wire of 1 metre length carrying 1 ampere current placed at right angle to the magnetic field is called:

   (A) Magnetic field intensity   (B) Magnetic flux   (C) Magnetic induction   (D) None of these

5. A moving charged particle is surrounded by:

   (A) Electric field only   (B) Magnetic field only   (C) Both electric and magnetic field   (D) No field

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

   (A) $qv\,B\,\sin q$ (B) qvB (C) Zero   (D) ILB

7. The unit $NA^{-1}\,m^{-1}$ is called:

   (A) Weber   (B) Tesla   (C) Coulomb   (D) None of these

8. Two parallel straight wires carrying current in same direction will:

   (A) Repel each other   (B) Attract each other   (C) No effect   (D) May repel or attract

9. A current flowing towards the reader be denoted by:

   (A) Cross   (B) A bracket   (C) A dot   (D) Positive sign

10. The SI unit of magnetic induction Tesla is equal to:

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

11. If fingers of right hand show the direction of magnetic field and palm shows the direction of force, then thumb points for:

    (A) Torque   (B) Voltage   (C) Current   (D) Inducted

12. Electric current produces magnetic field was suggested by:

    (A) Faraday   (B) Oersted   (C) Henry   (D) Lenz

13. Tesla is a unit of:

    (A) Flux density   (B) Magnetic flux   (C) Self inductance   (D) Mutual inductance

14. Two parallel straight wires carrying current in opposite direction:

    (A) Repeal each other   (B) Attract each other
    (C) Have no effect upon each other   (D) They cancel out their individual magnetic effect

15. A current-carrying conductor experiences maximum magnetic force in a uniform magnetic field when it is placed:

    (A) Perpendicular to field   (B) Parallel to field   (C) At angle of 60º to the field   (D) At angle 180º to the field

16. A 5m wire carrying a current of 2A is at right angles to the uniform magnetic field of 0.5 weber m^{-2} The force on the wire is:

(A) 2 N 　　(B) 4 N 　　(C) 5 N 　　(D) 1.5 N

17. The SI unit of magnetic Induction (flux density) is:

(A) Weber 　　(B) Henry 　　(C) Tesla 　　(D) Guass

18. One tesla (T) is equal to:

(A) 1 NA^{-7} 　　(B) 1 Nm^{-1} 　　(C) 1 NA^{-1}m 　　(D) 1 NA^{-1} m^{-1}

19. Two long parallel wires carrying current in the same direction:

(A) Attract 　　(B) Repel 　　(C) Tum 　　(D) No effect

20. Fleming left hand rule is used to determine the direction of:

(A) Magnetic field 　　(B) Induced current 　　(C) Force on a current-carrying conductor 　　(D) Electric field

21. In Fleming left hand rule, the middle finger represents:

(A) Force 　　(B) Magnetic field 　　(C) Direction of current 　　(D) Induced voltage

22. Fleming left hand rule is mainly used in:

(A) Electric motors 　　(B) Electric generators 　　(C) Transformers 　　(D) Inductors

23. The SI units of magnetic flux and magnetic flux density, respectively are:

(A) Weber (Wb), gauss (G) 　　(B) Weber (Wb), tesla (T) 　　(C) Newton (N), henry (H) 　　(D) Gauss (G), ampere (A)

24. Magnetic flux increases when:

(A) Magnetic field decreases 　　(B) Area perpendicular to the field decreases 　　(C) Angle between field and area increases 　　(D) Field strength or effective area increases

25. If the number of turns in a coil is doubled, the magnetic flux linkage:

(A) Remains the same 　　(B) Is halved 　　(C) Doubles 　　(D) Becomes zero

26. What physical phenomenon results from a change in magnetic flux linkage?

(A) Electric resistance 　　(B) Electromagnetic induction 　　(C) Capacitance 　　(D) Magnetic force

27. Magnetic field of 0.5 T is parallel to vector area of 1m ^ T of a coil, flux through the coil is:

(A) Zero 　　(B) 5 Weber 　　(C) 0.2 weber 　　(D) 0.5 weber

28. If the coil is wound on iron core, the flux through it:

(A) Decreases 　　(B) Becomes zero 　　(C) Remains constant 　　(D) Increases

29. The unit of magnetic flux is:

(A) Tesla 　　(B) Weber 　　(C) Ampere 　　(D) None

30. Magnetic lines of force are:

(A) Imaginary 　　(B) Real 　　(C) Perpendicular 　　(D) In phase with elect lines of force

31. Magnetic flux is minimum, when angle between vector area and B is:

(A) 0º 　　(B) 45º 　　(C) 90º 　　(D) 180º

32. The SI unit of magnetic flux density is:

(A) Wbm 　　(B) Wbm^{-1} 　　(C) Wbm^{-2} 　　(D) Wbm^{-3}

33. If we make the magnetic field stronger, the value of induced current:

(A) Decreased 　　(B) Increased 　　(C) Vanished 　　(D) Kept constant

34. The induced current in a loop can be increased by:

(A) Using strong magnetic field 　　(B) Moving the loop faster 　　(C) Replacing loop by a coil 　　(D) All of these

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

(A) Mass   (B) Momentum   (C) Charge   (D) Energy

36. The Lenz's law refers to:

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

37. 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

38. The motional emf is given by:

(A) qvB   (B) iBL   (C) eBL   (D) vBl

39. The motional emf depends upon the:

(A) Length of conductor   (B) Speed of conductor   (C) Strength of magnet   (D) All of these

40. Lenz's law is related to the:

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

41. Lenz's law helps to determine the:

(A) Magnitude of induced current   (B) Direction of induced current   (C) Resistance in the circuit   (D) Power consumed

42. 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

43. Faraday's law is the fundamental principle behind:

(A) Electric motors   (B) Batteries   (C) Transformers and generators   (D) Thermocouples

44. 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

45. Induced emf can be increased by:

(A) Increasing resistance of the oil   (B) Decreasing resistance of the coil   (C) Increasing number of turns of coil   (D) Decreasing rate of magnetic flux

46. If a conductor of length 1 m is moved with velocity v across a magnetic field B at an angle 30 deg with B, then the motional emf will be:

(A) VBL   (B) 0.866 Vb   (C) 0.899 VB   (D) None

47. Emf is induced due to change in:

(A) Electric flux   (B) Magnetic flux   (C) Electric potential   (D) Electric, current

48. Electric current producing magnetic field was discovered by:

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

49. The current flowing through a coil due to induced emf in it depends upon:

(A) Shape of the coil   (B) Resistance of the coil   (C) Area of the coil   (D) Magnetic flux

50. The induced emf primarily produced at the cost of:

(A) Internal energy   (B) Chemical energy   (C) Electrical energy   (D) Mechanical energy

51. 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) $0°$ (B) $30°$ (C) $45°$ (D) $60°$

52. A ferrofluid is a:

(A) Gas with magnetic properties   (B) Liquid that becomes magnetized in the presence of a magnetic field

(C) Solid magnetic material dissolved in water   (D) Non-magnetic fluid used for insulation

53. 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

54. Which property allows ferrofluids to respond to magnetic fields?

(A) Thermal conductivity   (B) Paramagnetism   (C) Ferromagnetism   (D) Superconductivity

55. 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

56. The carrier liquid in a ferrofluid can be:

(A) Only water   (B) Only oil   (C) Water, oil, or organic solvents   (D) Only mercury

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

(A) Solid   (B) Plasma   (C) Gas   (D) Regular liquid

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

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

59. What keeps the magnetic particles in a ferrofluid from clumping together?

(A) Gravity   (B) Friction   (C) Surface tension   (D) Surfactants or dispersing agents

60. When exposed to a magnetic field, a ferrofluid:

(A) Forms spike-like patterns   (B) Boils   (C) Becomes transparent   (D) Solidifies permanently

61. In a loudspeaker, ferrofluids are used to:

(A) Absorb sound   (B) Cool the voice coil and dampen vibrations   (C) Increase magnetic field strength   (D) Create colourful patterns

62. What does a seismometer measure?

(A) Rainfall   (B) Earthquakes   (C) Wind speed   (D) Temperature

63. The working principle of a seismometer is based on:

(A) Magnetic fields   (B) Electrical resistance   (C) Inertia of a suspended mass   (D) Buoyancy

64. What type of energy does a seismometer detect?

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

65. 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

66. 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)

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

(A) Sound waves   (B) Electrical signals   (C) Chemical changes   (D) Light pulses

68. 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

69. 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

Multiple Choice Correct Answers

1	(C)	2	(C)	3	(A)	4	(C)	5	(C)	6	(C)	7	(B)	8	(B)	9	(C)	10	(A)
11	(C)	12	(B)	13	(A)	14	(A)	15	(A)	16	(C)	17	(C)	18	(D)	19	(A)	20	(C)
21	(C)	22	(A)	23	(B)	24	(D)	25	(C)	26	(B)	27	(A)	28	(D)	29	(A)	30	(A)
31	(C)	32	(B)	33	(B)	34	(D)	35	(D)	36	(A)	37	(B)	38	(C)	39	(D)	40	(D)
41	(B)	42	(C)	43	(C)	44	(D)	45	(C)	46	(D)	47	(B)	48	(C)	49	(B)	50	(D)
51	(B)	52	(D)	53	(D)	54	(C)	55	(A)	56	(C)	57	(D)	58	(B)	59	(D)	60	(A)
61	(B)	62	(B)	63	(C)	64	(D)	65	(C)	66	(D)	67	(B)	68	(D)	69	(D)		