



# B.K. BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS  
A CBSE DAY-CUM-BOYS' RESIDENTIAL SCHOOL



## PERIODIC TEST-1

### PHYSICS (042)

Class: XII

Date: 04.07.25

Admission no:

Time: 1hr

Max Marks: 25

Roll no:

#### General Instructions:

- (i) There are three sections A, B, and C with 13 questions in total, Section A has 5 Multiple Choice Questions of one mark each, Section B has 4 questions of two marks each and Section C has 4 questions of three marks each.
- (ii) All questions are compulsory.
- (iii) Calculators are not allowed.

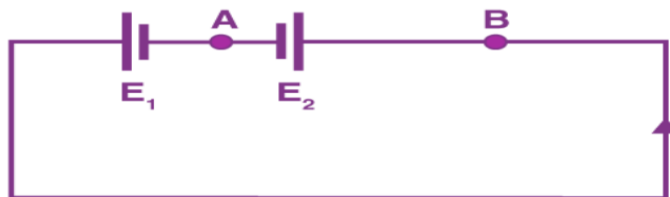
#### Section A

1. Give the number of electrons passing through a wire per minute. The current flowing through it is 500mA. 1  
a)  $1.875 \times 10^{20}$  b)  $6.875 \times 10^{20}$   
c)  $1.875 \times 10^{-20}$  d)  $6.875 \times 10^{-20}$
2. Which type of current is flowing through a circuit? 1  
a) Static current b) Conventional current  
c) Electronic current d) Potential current
3. Give the SI unit of the magnetic field. 1  
a) Ampere b) Tesla  
c) Oersted d) Weber
4. What is the work done by the magnetic field on a moving charged particle? 1  
a) Maximum b) Minimum  
c) Depends on the strength of the magnetic field d) Zero
5. Which of the following will experience a maximum force, when projected with the same velocity perpendicular to the magnetic field: (i)  $\alpha$ -particle, and (ii)  $\beta$ -particle? 1  
a) Both  $\alpha$ -particle and  $\beta$ -particle b) None  
c)  $\beta$ -particle d)  $\alpha$ -particle

#### Section B

6. For wiring in the home, one uses Cu wires or Al wires. What considerations are involved in this? 2

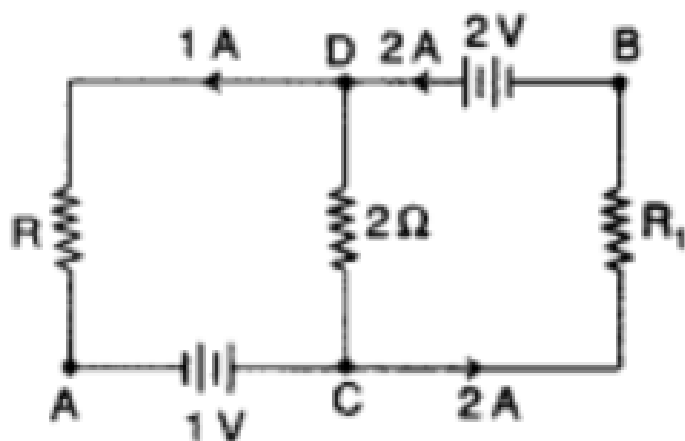
7. The circuit in the figure shows two cells connected in opposition to each other. Cell  $E_1$  is of emf 6V and internal resistance 2 ohm; cell  $E_2$  is of emf 4V and internal resistance 8 ohm. Find the potential difference between points A and B. 2



8. Using the concept of force between two infinitely long parallel current carrying conductors, define one ampere of current. 2
9. Depict the trajectory of both charged particle moving with velocity  $v$  as it enters a uniform magnetic field perpendicular to the direction of its motion. 2

### Section C

10. An ammeter of resistance  $0.6 \Omega$  can measure current upto 1.0 A. Calculate 3
- The shunt resistance required to enable the ammeter to measure current up to 5.0 A.
  - The combined resistance of the ammeter and the shunt.
11. Using Ampere's circuital law, obtain an expression for the magnetic field along the axis of a current carrying solenoid of length  $l$  and having  $N$  number of turns. 3
12. Two metallic wires of the same material have the same length but cross-sectional area is in the ratio 1: 2. They are connected 3
- in series and
  - in parallel.
- Compare the drift velocities of electrons in the two wires in both the cases (i) and (ii).
13. In the given circuit, assuming point A to be at zero potential, use Kirchhoff's rules to determine the potential A at point B.



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-----BEST OF LUCK-----