

NEET ELECTROMAGNETIC WAVES — DISPLACEMENT CURRENT AND MAXWELL'S EQUATIONS (QUALITATIVE) — PYQS

Max. Marks: 20

Questions: 5

Section A (MCQ) — 5 questions

Q.1 A parallel plate capacitor made of circular plates is being charged such that the surface charge density on its plates is increasing at a constant rate with time. The magnetic field arising due to displacement current is: [NEET (UG) 2025]

- (1) Non-zero everywhere with maximum at the imaginary cylindrical surface connecting peripheries of the plates
- (2) Zero between the plates and non-zero outside
- (3) Zero at all places
- (4) Constant between the plates and zero outside the plates

Scan or tap for the full solution



Q.2 A parallel plate capacitor is charged by connecting it to a battery through a resistor. If I is the current in the circuit, then in the gap between the plates:

[NEET (UG) 2024]

- (1) There is no current
- (2) Displacement current of magnitude equal to I flows in the same direction as I
- (3) Displacement current of magnitude equal to I flows in a direction opposite to that of I
- (4) Displacement current of magnitude greater than I flows but can be in any direction

Scan or tap for the full solution



Q.3 A capacitor of capacitance ' C ', is connected across an ac source of voltage V , given by $V = V_0 \sin \omega t$. The displacement current between the plates of the capacitor, would then be given by :

[NEET (UG) 2021]

- (1) $I_d = V_0 \omega C \sin \omega t$
- (2) $I_d = V_0 \omega C \cos \omega t$
- (3) $I_d = \frac{V_0}{\omega C} \cos \omega t$
- (4) $I_d = \frac{V_0}{\omega C} \sin \omega t$

Scan or tap for the full solution



Q.4 A parallel plate capacitor of capacitance $20 \mu\text{F}$ is being charged by a voltage source whose potential is changing at the rate of 3 V/s . The conduction current through the connecting wires, and the displacement current through the plates of the capacitor, would be, respectively :

[NEET (UG) 2019]

- (1) zero, zero
- (2) zero, $60 \mu\text{A}$
- (3) $60 \mu\text{A}$, $60 \mu\text{A}$
- (4) $60 \mu\text{A}$, zero

Scan or tap for the full solution



Q.5 A 100Ω resistance and a capacitor of 100Ω reactance are connected in series across a 220 V source. When the capacitor is 50% charged, the peak value of the displacement current is

[NEET 2016 (Phase 2)]

- (1) 2.2 A
- (2) 11 A
- (3) 4.4 A
- (4) $11\sqrt{2} \text{ A}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5						
Ans.	1	2	2	3	1						