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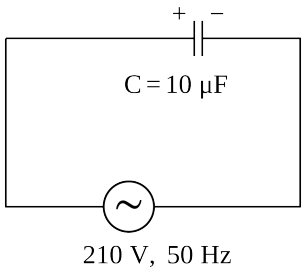
NEET ALTERNATING CURRENT — AC VOLTAGE APPLIED TO A CAPACITOR — PYQS

Max. Marks: 28 **Questions:** 7

Section A (MCQ) — 7 questions

Q.1 A 10 μF capacitor is connected to a 210 V, 50 Hz source as shown in figure. The peak current in the circuit is nearly (π = 3.14) : [NEET (UG) 2024]



(1) 0.58 A (2) 0.93 A (3) 1.20 A (4) 0.35 A

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Q.2 An ac source is connected to a capacitor C. Due to decrease in its operating frequency : [NEET (UG) 2023]

(1) displacement current increases.
(2) displacement current decreases.
(3) capacitive reactance remains constant.
(4) capacitive reactance decreases.

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Q.3 Given below are two statements

Statement-I: In an a.c circuit, the current through a capacitor leads the voltage across it.

Statement-II: In a.c circuit containing pure capacitance only, the phase difference between the current and voltage is π.

In the light of the above statements, choose the most appropriate answer from the options given below [NEET (UG) 2022 (Phase 2)]

(1) Statement-I is incorrect but Statement-II is correct
(2) Both Statement-I and Statement-II are correct
(3) Both Statement-I and Statement-II are incorrect
(4) Statement-I is correct but Statement-II is incorrect

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Q.4 A 40 μF capacitor is connected to a 200 V, 50 Hz ac supply. The rms value of the current in the circuit is, nearly : [NEET (UG) 2020]

(1) 2.05 A (2) 2.5 A (3) 25.1 A (4) 1.7 A

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Q.5 A small signal voltage $V(t) = V_0 \sin \omega t$ is applied across an ideal capacitor C [NEET 2016 (Phase 1)]

(1) Current I(t) is in phase with voltage V(t).
(2) Current I(t) leads voltage V(t) by 180°
(3) Current I(t) lags voltage V(t) by 90°.
(4) Over a full cycle the capacitor C does not consume any energy from the voltage source.

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Q.6 In the ac circuit an alternating voltage $e = 200\sqrt{2}\sin 100t$ volts is connected to a capacitor of capacity 1 μF. The r.m.s. value of the current in the circuit is [AIPMT 2011 (Prelims)]

(1) 10 mA (2) 100 mA (3) 200 mA (4) 20 mA

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Q.7 A capacitor of capacity C has reactance X. If capacitance and frequency become double then reactance will be [AIPMT 2001]

(1) 4X (2) X/2 (3) X/4 (4) 2X

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ANSWER KEY

Ques.	1	2	3	4	5	6	7				
Ans.	2	2	4	2	4	4	3				