

PYQSide

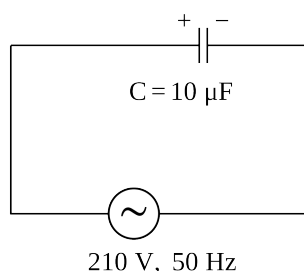
NEET ALTERNATING CURRENT — AC VOLTAGE APPLIED TO A CAPACITOR — PYQS

Max. Marks: 28

Questions: 7

Section A (MCQ)

- Q.1** A $10\ \mu\text{F}$ capacitor is connected to a $210\ \text{V}$, $50\ \text{Hz}$ source as shown in figure. The peak current in the circuit is nearly ($\pi = 3.14$) : [NEET (UG) 2024]



- (1) $0.58\ \text{A}$ (2) $0.93\ \text{A}$ (3) $1.20\ \text{A}$ (4) $0.35\ \text{A}$

Scan or tap for the full solution



- 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.

Scan or tap for the full solution



- 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

Scan or tap for the full solution



- Q.4** A $40\ \mu\text{F}$ capacitor is connected to a $200\ \text{V}$, $50\ \text{Hz}$ ac supply. The rms value of the current in the circuit is, nearly : [NEET (UG) 2020]

- (1) $2.05\ \text{A}$ (2) $2.5\ \text{A}$ (3) $25.1\ \text{A}$ (4) $1.7\ \text{A}$

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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.

Scan or tap for the full solution



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

- (1) $10\ \text{mA}$ (2) $100\ \text{mA}$ (3) $200\ \text{mA}$ (4) $20\ \text{mA}$

Scan or tap for the full solution



- 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) $2X$

Scan or tap for the full solution



ANSWER KEY

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