

PYQSide

JEE MAIN DUAL NATURE OF RADIATION AND MATTER — PHOTON: ENERGY, MOMENTUM AND RADIATION PRESSURE — PYQS

Max. Marks: 12

Questions: 3

Section A (MCQ)

- Q.1** A monochromatic source of light operating at 15 kW emits 2.5×10^{22} photons/s. The region of an electromagnetic spectrum to which the emitted electromagnetic radiation belongs to _____.
(Take $h = 6.6 \times 10^{-34}$ J.s and $c = 3 \times 10^8$ m/s).

[JEE Main 2026 (Online) 8th April Evening Shift]

- (1) Microwave (2) Infrared
(3) Visible (4) Ultraviolet

Scan or tap for the full solution



- Q.2** Number of photons of equal energy emitted per second by a 6 mW laser source operating at 663 nm is _____.
(Given : $h = 6.63 \times 10^{-34}$ J s and $c = 3 \times 10^8$ m/s)

[JEE Main 2026 (Online) 28th January Evening Shift]

- (1) 10×10^{15} (2) 5×10^{16}
(3) 5×10^{15} (4) 2×10^{16}

Scan or tap for the full solution



- Q.3** A small mirror of mass m is suspended by a massless thread of length l . Then the small angle through which the thread will be deflected when a short pulse of laser of energy E falls normal on the mirror
(c = speed of light in vacuum and g = acceleration due to gravity)

[JEE Main 2025 (Online) 4th April Morning Shift]

- (1) $\theta = \frac{E}{mc\sqrt{gl}}$ (2) $\theta = \frac{E}{2mc\sqrt{gl}}$
(3) $\theta = \frac{3E}{4mc\sqrt{gl}}$ (4) $\theta = \frac{2E}{mc\sqrt{gl}}$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3										
Ans.	4	4	4										