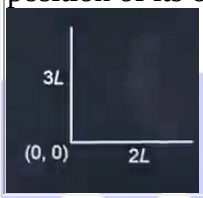
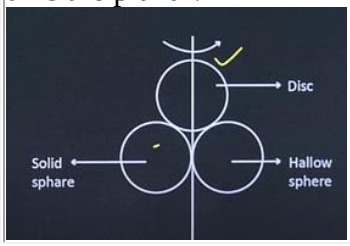
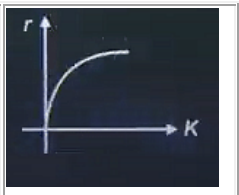
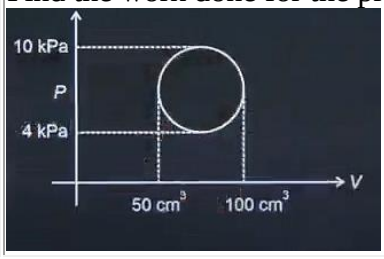
JEE MAIN 7 APRIL 2025 SHIFT 1

PHYSICS QUESTION PAPER WITH ANSWER KEY

Q. No.	Questions	Answers
1	The dimensions of a physical quantity $\varepsilon_0 \frac{d\phi_E}{dt}$ are similar to [Symbols have their usual meanings}	Electric current
2	An object is placed below two parallel layers of thickness d_1, d_2 are refractive index "μ_1, μ_2" respectively. Find apparent depth of the object	$d_1\mu_1+d_2\mu_2/\mu_1\mu_2$
3	A lens of focal length 20 cm in air is made of glass with refractive index 1.6. What is its focal length when it is immersed in a liquid of refractive index 1.8?	-108cm
4	A rod of length 5L is converted in L-shape as shown. Find the position of its of mass w.r.t origin. 	(9L/10, 4L/5)
5	A composite sound wave is represented by y= A cos ωt. cos ω't. The observed beat frequency is	ω't/π
6	MOI of disc about central axis perpendicular to surface is / then moment of inertia of given assembly is, where each round object is of same mass and same radius. (Given centre of round bodied and axis are planar. 	199/30 I
7	A block of man m slides an inclined plane of inclination 60° with an acceleration of g/2 then friction coefficient between block and plane is	√ 3 -1
8	Two convex lenses of focal length 30 cm and 10 cm are kept 10 cm apart. Principal axis of the lenses is common. Find equivalent power of the lens system.	10 D
9	Two rods whose lengths are in ratio of 1:3 and of diameter are in ratio of 2: 1, then ratio of elongationss of rod if force applied and material of rods are same	1/12

10	A charge particle moves in circular path in uniform magnetic field. The graph of radius of circular path versus its kinetic energy is best and represented by	
11	Find the work done for the process shown in figure. 	3π/40 J
12	Match the two columns. Column-I a. Monoatomic gas b. Diatomic rigid gas C. Diatomic non-rigid d. Triatomic non-linear rigid Column-II (i) γ=7/5 (ii) γ=4/3 (ill) γ=5/3 (iv)γ=9/7	a(iii), b(i), c(iv), d(ii)