

Analysis of AIEEE 2005 Paper in Physics

Question No's.	Topic	Concept
1	Units & Dimensions	Determine dimensional formula of given Physical quantities
2	Kinematics	Differentiate the given equation twice to get $\frac{d^2x}{dt^2}$
3	Kinematics	Use of equations for constant acceleration.
4	Relative velocity	Calculate change in velocity graphically or mathematically.
5	Projectile Motion	Range is same for complimentary angle of projections
6.	Circular Motion	In uniform circular motion particle has centripetal force only acting on it.
7, 8	Laws of Motion	On smooth part of inclined plane acceleration is determined by gravity while on rough part friction force and gravity both decide acceleration.
9	Work, Power & Energy	Work energy theorem
10	Work, Power & Energy	Work energy theorem
11	Laws of Motion	use $F = ma$
12	Work, Power & Energy	Work energy theorem
13	Collision	Conservation of momentum
14	Work, Power & Energy	Conservation of mechanical energy
15	Laws of Motion	Newton's 1 st , 2 nd and 3 rd laws
16	Rotation	Moment of inertia
17	Centre of Mass	Internal forces do't effect the motion of centre of mass.
18	Rotation	For pure translatory motion F should act at COM of system.
19	Gravitation	Variation of g with height and depth
20	Gravitation	Conservation of Mechanical energy (Use P.E. = $-GMm/r$)

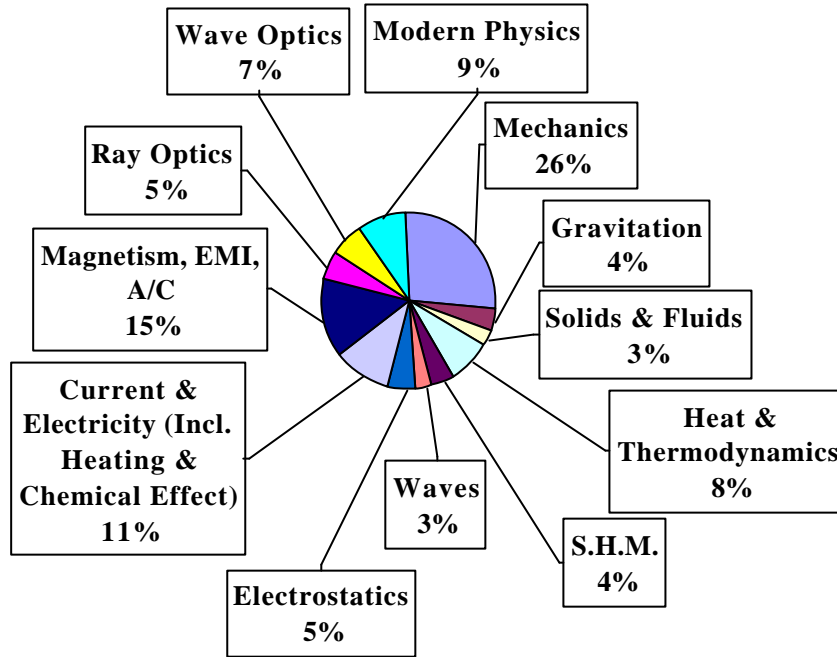
Question No's.	Topic	Concept
21	Surface Tension	Rise of liquid in capillary tube.
22	Strength of Material	Formula
23	Gravitation	$\rho = \frac{3}{4\pi RG} g$
24	Kinematics	Use $v = u + at$ and $P = \vec{F} \cdot \vec{v}$.
25	Work, Power & Energy	Work energy theorem
26	Heat & Thermodynamics	Entropy is introduced by IInd law
27	Heat & Thermodynamics	Area enclosed by T-S. Curve gives work done.
28	Heat & Thermodynamics	Formula
29	Heat & Thermodynamics	Internal Energy is a state function
30	Heat & Thermodynamics	Use $\frac{n_1 + n_2}{\gamma - 1} = \frac{n_1}{\gamma_1 - 1} + \frac{n_2}{\gamma_2 - 1}$ where $\gamma = C_p/C_v$ for mixture.
31	Wave Optics	Use $I = I_0 e^{-\mu x}$
32	Current Electricity	Electron goes from valance band to conduction band when energy equal to energy gap is supplied to atom.
33	Wave Optics	For point source, intensity, $I \propto \frac{1}{r^2}$
34	Nuclear Physics	Half life
35	Atomic Physics	$R \propto A^{1/3}$
36	Bohr Model	$\Delta E = 13.6 \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right) eV$
37	Dr. Broglie Theoriey	$\lambda = \frac{h}{\sqrt{2m K}}$
38	Transistor	Phase does't change for CB amplification
39	Diode	Out put of full wave rectifier



Question No's.	Topic	Concept
40	Nuclear Physics	Total no. of nucleon's on both sides should be same
41	S.H.M.	Any function which can be represented as $y = A \sin(\omega t + \phi)$ represents S.H.M.
42	YDSE	For a given frinze, distance of point on frinze from two fixed points (i.e. sources S_1 & S_2) is constant.
43	S.H.M.	Velocity leads displacement by $\pi/2$.
44	Ray Optics	Total internal reflection
45	Optical Instruments	Limit of resolution
46	Ray Optics	$P = \left(\frac{\mu_2}{\mu_1} - 1 \right) \left(\frac{1}{R_1} - \frac{1}{R_2} \right)$
47	Waves	Beat frequency = $f_1 \sim f_2$
48	S.H.M.	Differential equation of S.H.M.
49	S.H.M.	$T = 2\pi \sqrt{\frac{l}{g}}$, where l is distance between point of suspension and COM of the body.
50	Doppler's effect	$f' = f \frac{v - v_0}{v - v_s}$
51	Diffraction	Intensity is independent of width of slit.
52.	Polarization	Average intensity of polarized light is half of intensity of unpolarized light.
53	Electrostatics	For large conducting sheet $E = \frac{\sigma}{\epsilon_0}$ Also use the concept of Equilibrium
54	Electrostatic	$\vec{E} = \frac{Kq}{r^3} \mathbf{r}$
55	Electrostatics	$V = \frac{Kq}{r}$
56	Capacitance	Capacitors connected in parallel.
57	Current & Electricity	Heating effect of current
58	EMI	Induced emf = $-\frac{d\phi}{dt}$

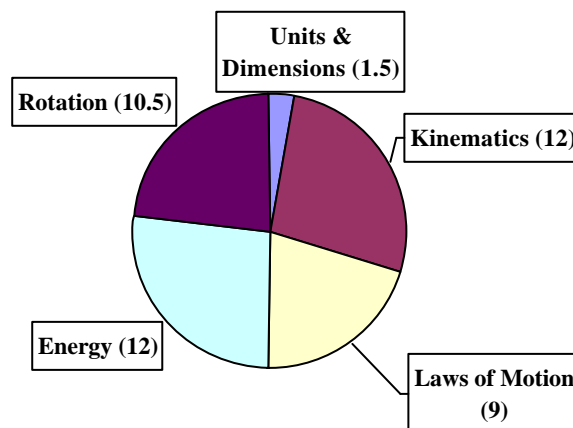
Question No's.	Topic	Concept
59	Current & Electricity	Heating effect of current
60	Magnetism	Force between two parallel wires.
61	Current & Electricity	Sensitivity and range of Galvanometer
62	Chemical effect of current	$m = zit$
63	Current & Electricity	Potentiometer
64	Current & Electricity	$V = E - ir$
65	Magnetism	Magnetic field at the centre of ring, $B = \frac{\mu_0 i}{2R}$
66	Magnetism	$T = \frac{2\pi m}{qB}$
67	Current & Electricity	Potentiometer
68	Current & Electricity	$P = \frac{V^2}{R}$
69	Magnetism	For magnetic dipole $\vec{\tau} = \vec{M} \times \vec{B}$ $\vec{F} = \vec{M} \frac{\partial \vec{B}}{\partial l}$
70	Electromagnetism	Force on charge due to electric and magnetic fields.
71	Magnetism	Growth of current in inductor
72	EMI	$\omega = \frac{1}{\sqrt{LC}}$
73	Current & Electricity	Source having large internal resistance acts as constant current source.
74.	Alternating Current	$\cos \phi = \frac{R}{z}$
75	Alternating Current	For L.C.R. series circuit; $\tan \phi = \left(\frac{X_L \sim X_C}{R} \right)$

**Module wise breakup of Questions
in
AIEEE-2005 (Physics)
by percentage**

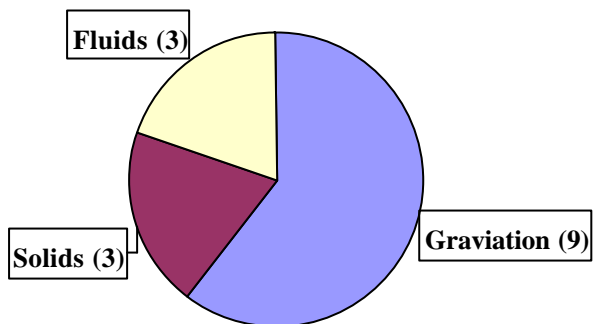


Mark wise breakup

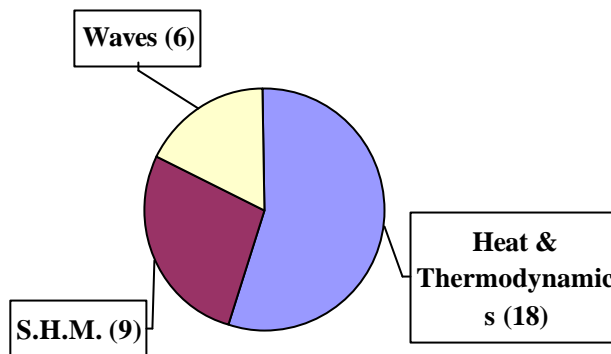
Set-I



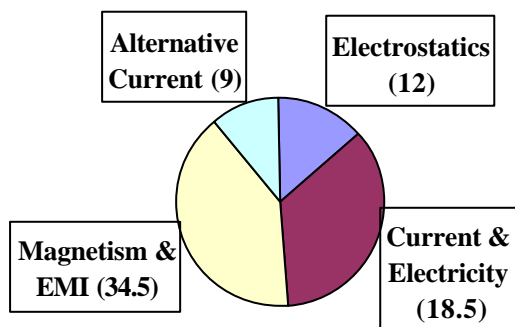
Set-II



Set-III



Set-IV



Set-V

