

Suguna International School
Pre-Annual Examination (December 2025)

XI AB – PHYSICS – ANSWER KEY

SECTION – A		
1.	C. Gauge pressure	1
2.	D. (a = 1; b = 2; c = - 2)	1
3.	C. 51 s	1
4.	B. 4 m/s ²	1
5.	D. Rotational kinetic energy = $\frac{1}{2} I\omega^2$	1
6.	D. Torque	1
7.	A. 7.9 km/s	1
8.	C. Elastic limit	1
9.	C. $\frac{1}{4}$ times	1
10.	D. $v = rg \tan \theta$	1
11.	C. Bernoulli's principle	1
12.	B. (radius) ²	1
Questions from 13 to 16: Assertion And Reason Type		
A. Both A and R are true, and R is the correct explanation of A.		
B. Both A and R are true, but R is not the correct explanation of A.		
C. A is true, but R is false.		
D. A is false, but R is true.		
13.	D	1
14.	C	1
15.	C	1
16.	A	1
SECTION – B		
17.	Differentiate between speed and velocity.	2
18.	i) Correct Not correct	2
19.	- 2.7 kg m/s, - 24.3 J	2
20.A	Elastic: If there is no loss of kinetic energy during a collision, it is called elastic collision. Inelastic collision: If there is a loss of kinetic energy during collision, it is called inelastic collision.	2
(OR)		
20. B	2 m/s ²	
21. A	Reynolds number (Re) is a dimensionless quantity used in fluid mechanics to determine the type of flow of a fluid — whether it is laminar or turbulent.	2
(OR)		
21. B	1) Lift of an aeroplane wing 2) Venturimeter 3) Atomizer (Spray gun) 4) Flow of blood in arteries	
SECTION – C		
22	i) Two ii) 248000 iii) 123.7 kg	3

23	i) $t = v-u/a = 5 \times 10^{-9} \text{ s}$ ii) $S = ut + \frac{1}{2} at^2 = 3.75 \times 10^{-5} \text{ m}$	3
24	(2.31 km or 4 root 3/3 m)	3
25	i) $\mu_s = f/N$ (dimensionless) ii) (Yes, f is more than centripetal force)	3
26	statement: 1, magnitude: 1, direction: 1	3
27. A	i) ($dL = FL/AY = 5.00 \text{ mm}$) ii) Definition: 1	3
(OR)		
27. B	Statement $12.5 \times 10^{11} \text{ Pa}$	
28	(h = 4.9 m and R = 35 m)	3
SECTION – D (CASE BASED QUESTIONS)		
29.	a. A. less in mines than that on the earth's surface (A) b. C. 1 c. A. h = R d. (B)	4
30.	a. Solids b. Modulus of elasticity c. $Y = W/A (l/dl) = 2 \times 10^{11} \text{ Nm}^{-2}$ d. Steel. Its YM is larger than that of rubber	4
SECTION – E		
31.A	i) 50 J ii) 5 m/s KE before collision = 450000 J, after collision = 225000 J so loss of kinetic energy after collision	5
(OR)		
31. B	i) ($U = \frac{1}{2} kx^2$) ii) (watt, $[ML^{-2}T^{-3}]$ ($P = Fv$))	
32. A	i) Statment ii) $P = P_a + h\rho g$ iii) (Hydraulic lift and hydraulic brakes)	5
(OR)		
32. B)	i) Statment, $F = 6\pi \eta av$ ii) ($v = \frac{2}{9} r^2 (\rho - \sigma)g / \eta$ iii) $[M^1L^{-1}T^{-1}]$	
33. A	Statment. 1 Proof: $P + \frac{1}{2} \rho v^2 + \rho gh = \text{constant}$ or $P/ \rho g + \frac{1}{2} v^2/g + h = \text{constant}$ (4)	5
(OR)		
33. B	i) Difference: 1 ii) Definition: 1 iii) $V_c = k\eta / \rho D$	