Sri Chaitanya IIT Academy, India

A.P, TELANGANA, KARNATAKA, TAMILNADU, MAHARASHTRA, DELHI, RANCHI

A right Choice for the Real Aspirant

ICON CENTRAL OFFICE, MADHAPUR-HYD

Sec: Sr. IPLCO **JEE ADVANCED** **DATE : 09-08-15**
TIME : 3:00 **2013_P1 MODEL** **MAX MARKS : 180**

KEY & SOLUTIONS

PHYSICS

1	**A**	2	**C**	3	**C**	4	**A**	5	**B**	6	**B**
7	**B**	8	**B**	9	**C**	10	**B**	11	**AD**	12	**BCD**
13	**AC**	14	**ABD**	15	**ABCD`**	16	**2**	17	**5**	18	**3**
19	**6**	20	**6**								

CHEMISTRY

21	**D**	22	**C**	23	**C**	24	**B**	25	**D**	26	**C**
27	**B**	28	**A**	29	**D**	30	**D**	31	**ABCD**	32	**A**
33	**ABCD**	34	**CD**	35	**BCD**	36	**1**	37	**1**	38	**6**
39	**9**	40	**6**								

MATHEMATICS

41	**B**	42	**A**	43	**D**	44	**B**	45	**D**	46	**B**
47	**A**	48	**A**	49	**C**	50	**B**	51	**ABC**	52	**ABCD**
53	**ABD**	54	**BC**	55	**B**	56	**3**	57	**1**	58	**5**
59	**4**	60	**2**								

PHYSICS

1. Conceptual
2. Conceptual

3. $a_1 = a_2$

$\therefore v_1 = v_2 = v(\text{say})$

$\therefore v = vol_3$

$a_1 = \dfrac{F - mg}{m}$

$a_2 = \dfrac{2F - 2mg}{2m}$

4.

5. $T_1 = 8g = 80N$

$\therefore k_2 x_2 = 20N$

$k_1 x_1 = 40N$

$\therefore x = \dfrac{10 + 20}{2} = 15cm$

6. For plank $0 = 2 + (-9)(0.5)$

$\therefore a = 4ms^{-2}$

For block in plank frama $a^1 = \dfrac{4m - (-1)mg}{m} = 3ms^{-2}$

In 0.5 sec $x_1 = \dfrac{1}{2}(3)(0.5)^2 = 3/8m$

After 0.5 sec $v = (3)(0.5) = 1.5ms^{-1}$

$(0)^2 - (1.5)^2 = 2(-1)(x_2)$

$\therefore x_2 = 9/8m$

$\therefore$ total distance $= 3/8 + 9/8 = 1.5m$

7. Conceptual

8. Conceptual

9. Conceptual

10. Conceptual

11. Conceptual

12. Conceptual

13. Conceptual

14. Conceptual

15. Conceptual

16. Let elongation in upper and lower springs be y and x

$F = kx$

$2F = ky \qquad \therefore y = 2x$

$2y + x = 10\text{cm}$

$2(2x) + x = 10\text{cm}$

$\therefore x = 2\text{cm}$

$\therefore y = 4\text{cm}$

$\therefore F = kx = 10\text{N}$

17. $1000\text{N} = k(p_o) = k(s)$

18. $AB = \frac{1}{2} g \sin(75-\theta)(t)^2 \qquad \frac{AB}{\sin 60} = \frac{AC}{\sin 75}$

$AC = \frac{1}{2} g \sin(60+\theta)(t)^2$

$\frac{AB}{AC} = \frac{\sin(75-\theta)}{\sin(60+\theta)} = \frac{\sin 60}{\sin 75} \qquad \therefore (\theta = 15^o)$

19. $F = \sqrt{F_1 F_2} = \sqrt{36} = 6$

20. Conceptual