# 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–ADVANCE | Date: 18-10-15 |
|---|---|---|
| Time: 3 Hours | 2011-P2-Model | Max Marks: 240 |

## KEY & SOLUTIONS

### CHEMISTRY

| 1 | **D** | 2 | **A** | 3 | **D** | 4 | **B** | 5 | **B** | 6 | **D** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | **C** | 8 | **B** | 9 | **A** | 10 | **BCD** | 11 | **CD** | 12 | **A** |
| 13 | **2** | 14 | **3** | 15 | **0** | 16 | **5** | 17 | **0** | 18 | **3** |
| 19 | **A-PT, B-PS, C-PQ, D-PR** | 20 | **A-PQST, B-PQR, C-PS, D-PS** | | | | | | | | |

### PHYSICS

| 21 | **D** | 22 | **C** | 23 | **A** | 24 | **C** | 25 | **B** | 26 | **B** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | **C** | 28 | **C** | 29 | **AD** | 30 | **AD** | 31 | **AC** | 32 | **BC** |
| 33 | **1** | 34 | **9** | 35 | **7** | 36 | **5** | 37 | **9** | 38 | **5** |
| 39 | **A-S; B-QT; C-R; D-PT** | 40 | **A-PRT; B-QS; C-Q; D-S;** | | | | | | | | |

### MATHEMATICS

| 41 | **B** | 42 | **C** | 43 | **A** | 44 | **B** | 45 | **C** | 46 | **B** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | **C** | 48 | **D** | 49 | **BC** | 50 | **ABCD** | 51 | **BD** | 52 | **AD** |
| 53 | **2** | 54 | **2** | 55 | **1** | 56 | **4** | 57 | **1** | 58 | **3** |
| 59 | **A-R, B-P, C-PQR, D-S** | 60 | **A-R, B-RS, C-RS, D-PR** | | | | | | | | |

# PHYSICS

21. conceptual
22. conceptual
23. conceptual
24. conceptual
25. conceptual
26. conceptual
27. conceptual
28. conceptual
29.



Corresponding displacement wave
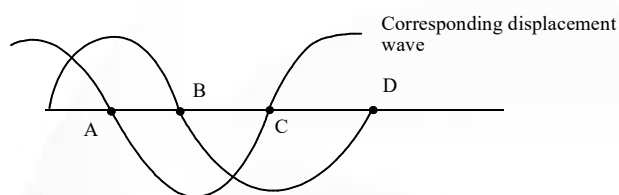
## Aliter:

$$p = p_0 \cos\ w\left(t - \frac{x}{v}\right)$$

$$s - s_0 \sin w\left(t - \frac{x}{v}\right)$$

$$v = \frac{ds}{dt} = S_0 W \cos w\left(t - \frac{x}{v}\right)$$

$\therefore$ V mirrors p

At A & C $\dfrac{\text{maximum slope}}{\therefore \text{max speed}}$

A – Slope – Ve

$\therefore V + Ve$

C – Slope +Ve

$\therefore V$ is $- Ve$

B,D slope zero

$V = 0$

30. conceptual
31. conceptual
32. conceptual

33. $P = \dfrac{p_0^2}{2\mu v}$ Independent of wavelength.

34. $\dfrac{\sqrt{x\mu} - \sqrt{\mu}}{\sqrt{x\mu} + \sqrt{\mu}} = \dfrac{1}{2}$

=> $x=9$

$I \alpha A^2$

35.  $\dfrac{I_1}{I_5} = \dfrac{A_1^2}{A_5^2} = 25$

   $A_5 = \dfrac{A_1}{5}$

36.  $A \sin\left(\dfrac{2\pi}{60\ cm}\right)(7.5) = 3.5$

   $A = 3.5\sqrt{2} = 4.95 \approx 5$

37.  Let the Time when the race car emitted a pulse corresponding to 1.5 kHz be t, Then the time it reaches the observer is equal to

   $$t + \dfrac{1000 - \dfrac{1}{2}(10)(t^2)}{v_s} = \dfrac{1000}{v_s} + 10$$
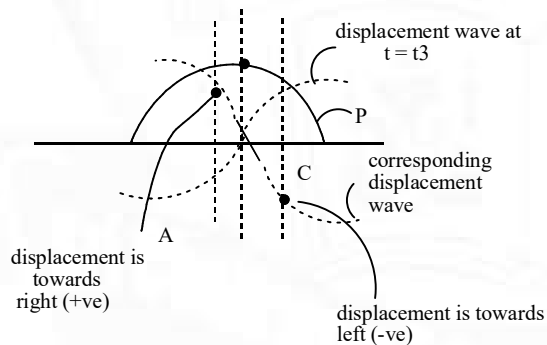
   $$t - \dfrac{5t^2}{v_s} = 10$$

   $$1.5 = \dfrac{v_s}{v_s - 10t}$$

   Solving for velocity of sound we get $v_s$=360 m/s

38.  B,C,D,E,F are all either at rest of moving down.
39.  Conceptual
40.



At t = $t_1$ particle is at extreme hence speed is zero
At t = $t_2$ particle is at mean position hence speed is maximum
A is moving towards –Ve (left)
C is moving towards +Ve (right)
t = $t_3$ displacement of C is +Ve & it is increasing $\Rightarrow$ V is +Ve towards right.

Displacement of A is – ve