

**FT - 4 (FR) (NEET - CBSE, GSEB) (01 - 04 - 2026)**

**ANSWER KEY**

Q	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans	2	1	2	1	2	4	3	2	2	2	3	4	3	2	1	1	2	1	1	4
Q	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Ans	1	1	3	3	1	2	3	2	3	3	1	1	2	3	2	3	3	4	3	1
Q	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans	4	1	2	1	3	3	2	4	4	4	1	1	1	2	1	1	2	2	1	4
Q	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Ans	3	4	4	1	2	1	1	2	4	1	3	2	1	1	3	2	3	4	3	1
Q	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Ans	3	2	4	2	1	2	2	4	2	1	1	1	2	4	1	2	1	4	2	4
Q	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
Ans	3	2	1	2	1	1	1	3	4	4	2	2	3	2	3	1	3	2	4	1
Q	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
Ans	2	1	4	2	3	4	1	3	1	3	3	3	4	4	1	4	2	1	4	2
Q	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
Ans	4	2	2	4	1	2	2	3	3	4	2	1	3	3	1	3	4	1	1	3
Q	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
Ans	2	2	1	1	2	3	2	4	3	3	3	2	2	2	4	1	4	1	3	3

**PHYSICS:**

1. Sol. (2)

$$T = \frac{m v^2}{\ell} = \frac{m (v^1)^2}{3\ell}$$

$$v^1 = \sqrt{3} v$$

2. Sol. (1)

$$\text{L.C.} = \left(1 - \frac{b}{a}\right) \times 1 \text{ MSD}$$

$$= \left(1 - \frac{N-2}{N}\right) \times 0.05 \text{ mm} = \frac{2}{N} \times \frac{0.05}{10} \text{ cm}$$

$$= \frac{1}{100 N}$$

3. Sol. (2)

$$a = \frac{100}{5+15} = 5 \text{ m/s}^2$$

$$\text{on A} - N_{AB} = m_{AA} = 5 \times 5 = 25 \text{ N}$$

$$N_{BA} = N_{AB} = 25 \text{ N}$$

4. Sol. (1)

$$Y = \frac{F/A}{\Delta L/L}$$

$$\Delta L_{\text{max}} = \frac{\text{Elastic limit} \times L}{Y}$$

$$\Delta L_{\text{max}} = \frac{1.5 \times 10^8 \times 10}{12 \times 10^{10}} = 0.0125 \text{ m}$$

$$= 1.25 \text{ cm}$$

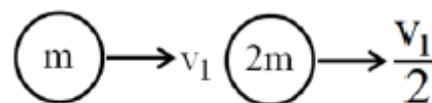
5. Sol. (2)

$$P = \vec{F} \cdot \vec{V}$$

$$\vec{V} = \frac{d\vec{x}}{dt} = -6\hat{i}$$

$$P = (2\hat{i})(-6\hat{i}) = -12 \text{ (SI unit)}$$

6. Sol. (4)



By momentum conservation :-

$$mv_1 + 2m \frac{v_1}{2} = 3mv_2$$

$$2v_1 = 3v_2 \Rightarrow \frac{v_1}{v_2} = 3/2$$

7. **Sol. (3)**

$$I = \frac{m\ell^2}{3} = 27$$

$$\ell = 9\text{m}$$

8. **Sol. (2)**

$$[T] = \left[ \frac{F}{L} \right] = \left[ \frac{N}{m} \right]$$

$$[K] = \left[ \frac{F}{x} \right] = \left[ \frac{N}{m} \right]$$

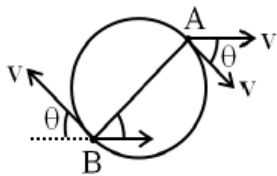
9. **Sol. (2)**

$$F_{\text{excess}} = 2 \times (T \times 4\ell) = 8T\ell$$

$$= 8 \times 0.07 \times 10 \times 10^{-2}$$

$$= 56 \times 10^{-3} \text{ N} = 56 \text{ mN}$$

10. **Sol. (2)**



$$v_A = 2v \cos\left(\frac{\theta}{2}\right)$$

$$v_B = 2v \cos\left(\frac{180^\circ - \theta}{2}\right) = 2v \sin\left(\frac{\theta}{2}\right)$$

$$\left(\text{here } \frac{\theta}{2} < \frac{\pi}{4}\right) \text{ so } v_A > v_B$$

11. **Sol. (3)**

$$\Delta E = TE_2 - TE_1$$

$$\Delta E = \frac{-GMm}{2(4R)} - \left(\frac{-GMm}{R}\right) = \frac{7GMm}{8R}$$

12. **Sol. (4)**

a = slope of v-t curve

so a = -ve, then a = 0 & then a = +ve

13. **Sol. (3)**

$$f = \frac{1}{2\pi\sqrt{LC}} = \frac{1}{2\pi\sqrt{20 \times 10^{-3} \times 2 \times 10^{-6}}} = 0.8 \text{ KHz}$$

14. **Sol. (2)**

$$I = \frac{30 - 10}{10} = 2 \text{ A}$$

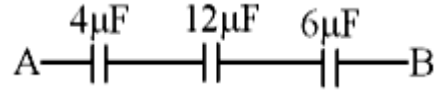
15. **Sol. (1)**

$$i_{600\Omega} = \frac{20 - 5}{600} = \frac{15}{600} \text{ A}$$

$$\frac{15}{600} = \frac{5}{R}$$

$$R = 200\Omega$$

16. **Sol. (1)**



$$C_{AD} = 2\mu\text{F}$$

17. **Sol. (2)**

$$I_d = C \frac{dv}{dt}$$

$$= 100 \times 10^{-6} \times 20$$

$$= 2 \text{ mA}$$

18. **Sol. (1)**

$$B_0 = \frac{E_0}{c} = \frac{24}{3 \times 10^8} = 8 \times 10^{-8} \text{ T}$$

19. **Sol. (1)**

$$F = I(\vec{\ell} \times \vec{B})$$

$$= 5[(2\hat{i}) \times (2\hat{i} + 3\hat{j} - 4\hat{k})]$$

$$= 5[6\hat{k} + 8\hat{j}]$$

$$= 50 \text{ N}$$

20. **Sol. (4)**

$$R_T = R_0 [1 + \alpha(T - T_0)]$$

$$8.4 = 4[1 + \alpha(60 - 0)]$$

$$\alpha = 0.0183^\circ\text{C}^{-1}$$

21. **Sol. (1)**

$$I_S = \frac{E}{20R}$$

$$I_P = \frac{E}{R/20} = \frac{20E}{R}$$

$$n = \frac{I_P}{I_S} = \frac{20E}{R} \times \frac{20R}{R} = 400$$

22. **Sol. (1)**

$$X_L = \omega L = 2\pi fL = 2\pi \times 50 \times \frac{100}{\pi} \times 10^{-3} = 10\Omega$$

$$X_C = \frac{1}{\omega C} = \frac{1}{2\pi fC} = 10\Omega$$

$$Z = \sqrt{R^2 + (X_L - X_C)^2}$$

$$= \sqrt{10^2 + (10 - 10)^2}$$

$$= 10\Omega$$

23. Sol. (3)

$$B = \frac{\mu_0 I \pi}{4\pi R} + \frac{\mu_0 2I}{4\pi R}$$

$$= \frac{\mu_0 I}{4R} \left[ 1 + \frac{2}{\pi} \right] \text{ pointed into the page.}$$

24. Sol. (3)

W = Area under rs curve bound with  $V_{axis}$

$$= - (400 \times 10^{-6} \text{ m}^3) \times (400 \times 10^3 \text{ Pa})$$

$$W = - 160 \text{ J}$$

25. Sol. (1)

Force  $F = YA \alpha \Delta T = 10^{11} \times 10^{-4} \times 10^{-6} \times (100-0)$

$$F = 1 \times 10^3 \text{ N}$$

26. Sol. (2)

$$V_{rms} \propto \sqrt{T} \Rightarrow \frac{V_1}{V_2} = \sqrt{\frac{T_1}{T_2}}$$

Let initial speed is  $V$ . As speed is increased by 2 times so final speed becomes  $3V$ .

$$\Rightarrow \frac{V}{3V} = \sqrt{\frac{123}{T_2}} \Rightarrow T_2 = 9 \times 123 = 1107 \text{ K}$$

27. Sol. (3)

Compare with  $x = A \sin(\omega t + \phi)$

$$A = 20 \text{ m } \omega = 4\pi \Rightarrow \frac{2\pi}{T} = 4\pi \Rightarrow T = \frac{1}{2} \text{ sec}$$

28. Sol. (2)

$$\frac{n_{OOP}}{n_{COP}} = \frac{\left(\frac{2V}{2L}\right)}{\left(\frac{3V}{4L}\right)} = \frac{4}{3}$$

29. Sol. (3)

$$T_{new} = \frac{x}{3} T_{old}$$

( $T$  is independent of mass of bob)

$$2\pi \sqrt{\frac{3L}{g}} = \frac{x}{3} \left[ 2\pi \sqrt{\frac{L}{g}} \right]$$

$$\Rightarrow x = 3\sqrt{3}$$

30. Sol. (3)

$$I = \frac{20}{3+2} = 4A$$

$$TPD = 20 - I \times 2$$

$$= 20 - 2 \times 4 = 12 \text{ Volt}$$

31. Sol. (1)

By relation between  $\vec{E}$  &  $V$

$$E = \frac{-dV}{dr}$$

32. Sol.(1)

In the case for maximum elongation,

Stress = Elastic limit

$$\delta_{max} = \frac{\sigma_{elastic} \times L}{Young's modulus} = \frac{8 \times 10^8 \times 1}{2 \times 10^{11}} = 4 \times 10^{-3}$$

$$= 4 \text{ mm}$$

i.e. maximum elongation is 4 mm

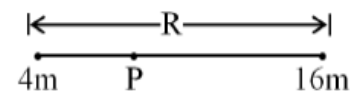
33. Sol. (2)

$$H_{max} = \frac{u^2 \sin^2 \theta}{2g}$$

$$1000 = \frac{u^2 \times \sin^2 45^\circ}{20}$$

$$\Rightarrow u = 200 \text{ m/s}$$

34. Sol. (3)



Position of Neutral point-

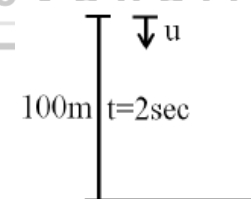
$$r_1 = \frac{\sqrt{m_1} R}{\sqrt{m_1} + \sqrt{m_2}} = \frac{\sqrt{4m} R}{\sqrt{4m} + \sqrt{16m}} = \frac{R}{3}$$

$$r_2 = R - \frac{R}{3} = \frac{2R}{3}$$

Now gravitational potential at point P :-

$$V_P = \frac{-G(4m)}{(R/3)} - \frac{G(16m)}{(2R/3)} = \frac{-36Gm}{R}$$

35. Sol. (2)



$$s = ut + \frac{1}{2} at^2$$

$$-100 = -u(2) - \frac{1}{2} \times 10 \times (2)^2$$

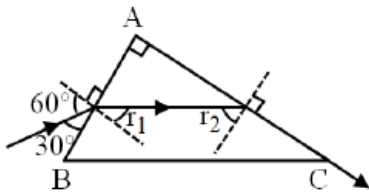
$$u = 40 \text{ m/s}$$

36. Sol. (3)

$$\mu = \frac{1}{\sin r_2} = \frac{\sin 60^\circ}{\sin r_1}$$

$$\& r_1 + r_2 = 90^\circ$$

$$\text{so, } \frac{\sin r_1}{\cos r_1} = \frac{\sqrt{3}}{2} \Rightarrow \tan r_1 = \frac{\sqrt{3}}{2}$$



$$\sin r_1 = \sqrt{\frac{3}{7}}$$

$$\text{so, } \mu = \frac{\sqrt{3}}{2} \times \frac{\sqrt{7}}{\sqrt{3}} = \frac{\sqrt{7}}{2}$$

37. Sol. (3)

$$n_D = \frac{ct_2}{s}, n_R = \frac{ct_1}{10s}$$

$$\sin i_c = \frac{n_R}{n_D} = \frac{ct_1}{10s} \times \frac{s}{ct_2} = \sin 30^\circ$$

$$\Rightarrow \frac{t_1}{10t_2} = \frac{1}{2} \Rightarrow \frac{t_1}{t_2} = \frac{5}{1}$$

38. Sol. (4)

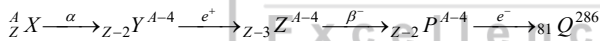
$$\text{Fringe width, } \beta = \frac{\lambda D}{d} \Rightarrow \beta \propto \frac{1}{d}$$

Angular fringe width,  $\theta \propto \lambda$  and  $\lambda_R > \lambda_G$

39. Sol. (3)

40. Sol. (1)

41. Sol. (4)



$$\therefore A - 4 = 286 \text{ and } Z - 1 = 81$$

$$A = 290 \text{ and } Z = 82$$

42. Sol. (1)

43. Sol. (2)

Shortest wavelength in Balmer series when transition of  $e^-$  from  $\infty$  to  $n = 2$

$$\therefore \frac{1}{\lambda} = RZ^2 \left[ \frac{1}{2^2} - \frac{1}{\infty^2} \right]$$

$$\therefore \frac{1}{\lambda} = \frac{R}{4} \quad \dots(1)$$

Shortest wavelength in P fund series when transition of  $e^-$  from  $\infty$  to  $n = 5$

$$\frac{1}{\lambda'} = R(1)^2 \left[ \frac{1}{5^2} - \frac{1}{\infty^2} \right] \Rightarrow \frac{1}{\lambda'} = \frac{R}{25}$$

$$\lambda' = \frac{25}{4} \lambda$$

44. Sol. (1)

Energy of photon  $E = 2.40 \text{ eV}$

Work functions of Cs and K are less than energy of incident photons but work function of Na is greater than energy of incident photons. So Cs and K emits photoelectrons.

45. Sol. (3)

Statement I :- Change in input voltage  $V$  does not effect the zener voltage  $V$  as it is the characteristic property of zener diode.

Statement II :- LED's requires low operational voltage and less power as compared to incandescent lamp.

**CHEMISTRY:****46. Sol.(3)**For CH<sub>3</sub>COOH:

$[H^+] = C \cdot \alpha$

$[H^+] = 10^{-2} \times \frac{1}{100} = 10^{-4} M$

pH = -log[H<sup>+</sup>]

pH = -log10<sup>-4</sup>

pH = 4

**47. Sol.(2)**

$$k = \frac{2.303}{t} \log \frac{[A]_0}{[A]_t}$$

$$\frac{0.693}{2000} = \frac{2.303}{8000} \log \frac{[A]_0}{0.02}$$

$\therefore [A]_0 = 0.32 M$

**48. Sol.(4)**

Relative lowering in vapour pressure = Mole fraction of solute

$$\therefore x_{\text{solute}} = \frac{n_{\text{solute}}}{n_{\text{solute}} + n_{\text{solvent}}}$$

$$= \frac{1}{1+3}$$

$$= \frac{1}{4} = 0.25$$

**49. Sol.(4)****50. Sol.(4)****51. Sol.(1)****52. Sol.(1)****53. Sol.(1)****54. Sol.(2)**For an ideal solution  $\Delta H_{\text{mix}} = 0$ 

$\Delta H_{\text{mix}} = 0$

$\Delta H_{\text{mix}} \neq 0$

According to  $\Delta G_{\text{mix}} = \Delta H_{\text{mix}} - T\Delta S_{\text{mix}}$ 

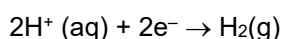
$\Rightarrow \Delta G_{\text{mix}} \neq 0$

Incorrect answer, is  $\Delta G_{\text{mix}} = 0$ **55. Sol.(1)**

Q = ne

i. t = n. e

$$n = \frac{1 \times 60}{1.6 \times 10^{-19}} = 3.75 \times 10^{20} \text{ electrons}$$

**56. Sol.(1)**

$$\therefore E = E^0 - \frac{0.0591}{2} \log \frac{P_{H_2}}{[H^+]^2}$$

$$0 = 0 - 0.0295 \log \frac{P_{H_2}}{(10^{-7})^2}$$

$$\frac{P_{H_2}}{(10^{-7})} = 1$$

$$P_{H_2} = 10^{-14} \text{ atm}$$

**57. Sol.(2)**

$$\text{Moles of } MgCO_3 = \frac{20}{24} = 0.238 \text{ mol}$$

From above equation

1 mole MgCO<sub>3</sub> gives 1 mole MgO $\therefore$  0.238 mole of MgCO<sub>3</sub> will give 0.238 mole

$MgO = 0.238 \times 40 \text{ g} = 9.523 \text{ g MgO}$

Practical yield of MgO = 8 g MgO

$$\therefore \% \text{ purity} = \frac{8}{9.523} \times 100 = 84\%$$

**58. Sol.(2)**

Arrhenius equation

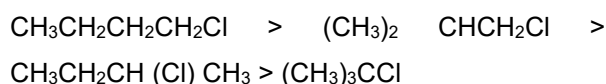
$$K = A \cdot e^{-E_a/RT} \Rightarrow \ln K = \ln A - \frac{E_a}{RT}$$

So, activation energy of reaction can be determined from the slope of  $\ln K$  vs  $\frac{1}{T}$ **59. Sol.(1)**

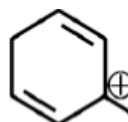
$$\frac{w_{H_2}}{w_{O_2}} = \frac{1}{4} \Rightarrow \frac{n_{H_2}}{n_{O_2}} = \frac{1/2}{4/32} = \frac{4}{1}$$

**60. Sol.(4)**

(Quantum numbers)		(Orbital)	
a	n = 2, $\ell = 1$	(i)	2 p
b	n = 3, $\ell = 2$	(ii)	3 d
c	n = 3, $\ell = 0$	(iii)	3 s
d	n = 2, $\ell = 0$	(iv)	2 s

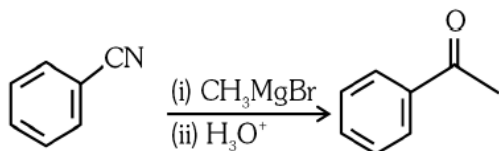
**61. Sol.(3)**

$$\text{Rate of } S_N2 \propto \frac{1}{\text{Steric Hindrance}}$$

**62. Sol.(4)**

3° Cation + resonance stabilized.

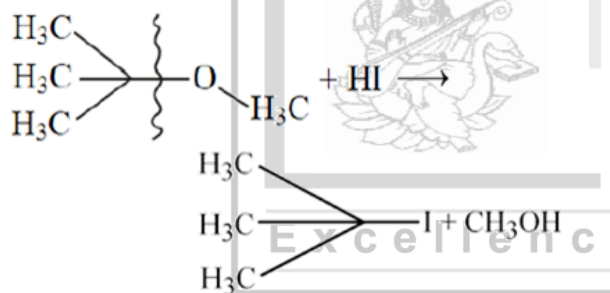
63. Sol.(4)



64. Sol.(1)

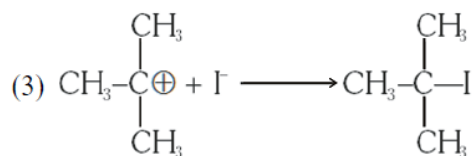
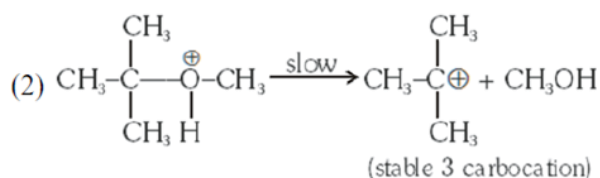
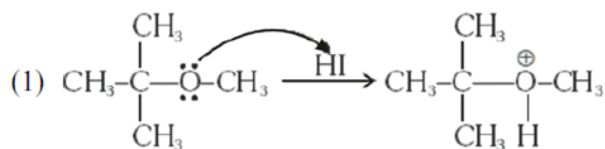
	Amines	pK <sub>b</sub>
(a)		3.27
(b)		4.75
(c)		9.30
(d)		9.38

65. Sol.(2)

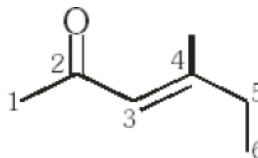


Whenever one of the alkyl group is a tertiary group, the halide formed is a tertiary halide.

**Mechanism:**



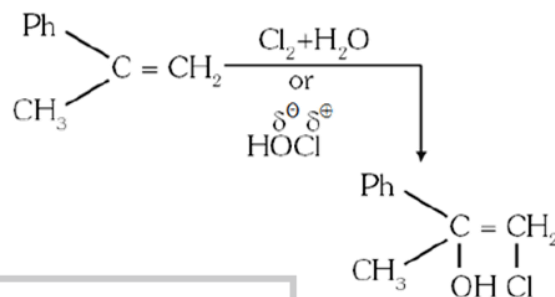
66. Sol.(1)



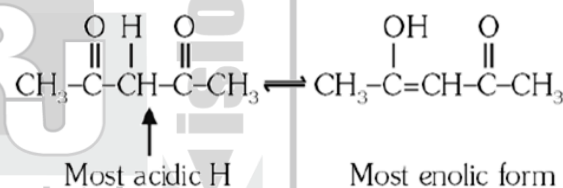
Longest parent chain is selected by giving lowest numbering to ketone

IUPAC name – 4-methyl hex-3-en-2-one

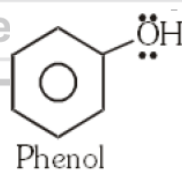
67. Sol.(1)



68. Sol.(2)

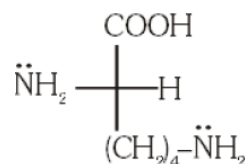


69. Sol.(4)



+R effect of –OH group enhances the reactivity in aromatic electrophilic substitution reaction.

70. Sol.(1)



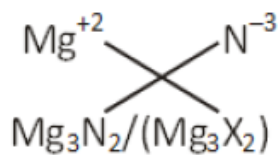
Lysine

Since it contains more number of –NH<sub>2</sub> groups as compared to –COOH groups hence it is basic amino acid.

71. Sol.(3)

1° amines react with Hinsberg's reagent to give a solid, which dissolve in alkali.





89. **Sol.(2)**

For same shell

$[s^1 < p^1 < s^2 < p^2 < p^4 < p^3 < p^5 < p^6]$

Li < B < Be < C < O < N < F < Ne

90. **Sol.(1)**

PCl<sub>5</sub> – Trigonal bipyramidal.

