BPT # 05 (NEET) SOLUTIONS

1. (b)
Sol. During the propagation of longitudinal wave in a medium, energy, not the matter is transmitted through the medium.

2. (b)
Sol. Here, L = 20m, T = 200N, M = 2.5kg
Mass per unit length,
$$\mu = \frac{M}{L} = \frac{2.5\text{kg}}{20\text{m}} = 0.125\text{kg m}^{-1}$$
$$\text{Velocity, } v = \sqrt{\frac{T}{\mu}} = \sqrt{\frac{200\text{N}}{0.125\text{kg m}^{-1}}} = 40\text{ms}^{-1}$$
Time taken by disturbance to reach the other end,
$$t = \frac{L}{v} = \frac{20\text{m}}{40\text{m s}^{-1}} = 0.5\text{s}$$

3. (a)
Sol. $y = 5\sin\frac{\pi}{2}(100t - x)$
$$y = A\sin(\omega t - kx)$$
$$\therefore \omega = \frac{2\pi}{T} = \frac{\pi}{2}\times 100$$
$$\text{Or } T = \frac{2}{50} = 0.045$$

4. (a)
Sol. $y_1 = a\sin(\omega t + kx + 0.57)$
$$\therefore \text{Phase, } \phi_1 = (\omega t + kx + 0.57)$$
$$y_2 = a\cos(\omega t + kx) = a\sin(\omega t + kx + \frac{\pi}{2})$$
$$\therefore \text{Phase, } \phi_2 = \omega t + kx + \frac{\pi}{2}$$
$$\text{Phase difference, } \Delta\phi = \phi_2 - \phi_1$$
$$= (\omega t + kx + \frac{\pi}{2}) - (\omega t + kx + 0.57)$$
$$= \frac{\pi}{2} - 0.57 = 1.57 - 0.57 = 1\text{radian}$$

5. (d)
Sol. The equations of a given progressive wave is
$y = 5\sin(100\pi t - 0.4\pi x)$ ….. (i)
The standard equations of a progressive wave is
$y = a\sin(\omega t - kx)$ ….. (ii)
Comparing (i) and (ii), we get
$$a = 5\text{m}, \omega = 100\,\pi\text{rads}^{-1}, k = 0.4\pi\text{m}^{-1}$$
(1) Amplitude of the wave, a = 5 m
(2) Wavelength of the wave,
$$\lambda = \frac{2\pi}{k} = \frac{2\pi}{0.4\pi} = 5\text{m}$$
(3) Frequency of the wave,
$$\upsilon = \frac{\omega}{2\pi} = \frac{100\pi}{2\pi} = 50\text{Hz}$$
(4) Velocity of the wave,
$$v = \upsilon\lambda = (50\text{s}^{-1})(5\text{m})$$
$$= 250\text{ms}^{-1}$$

6. (a)
Sol. $\frac{v}{\lambda_1} - \frac{v}{\lambda_2} = 4 \Rightarrow v\left(\frac{1.01-1}{1\times 1.01}\right) = 4 \Rightarrow v = 404$ m/s

7. (a)
Sol. v = 320 m/s $\Rightarrow$ For fundamental note
$$f = \frac{v}{4\ell} = \frac{320}{4\times 1} = 80\text{Hz}$$

8. (d)
Sol. As sound is mechanical wave

9. (c)
Sol.
Δx = 40 cm
$\Delta\phi = 1.6\,\pi$
V = 330 m/s
n = ?

$$\Delta\phi = \frac{2\pi}{\lambda}\Delta x$$
$$\lambda = \frac{2\pi}{\Delta\phi}\times\Delta x$$
$$= \frac{2\pi}{1.6\pi}\times\frac{40}{100}$$
$$\lambda = \frac{8}{16} = \frac{1}{2}\text{ m}$$

V = n λ
$$n = \frac{V}{\lambda} = \frac{330}{1/2}$$
n = 660 Hz

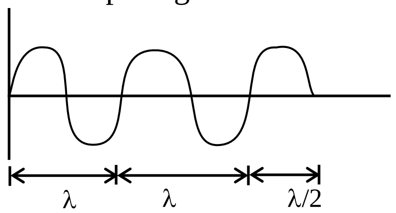
10. (b)
Sol. Resonance position depends on length of air column

11. (b)

Sol. As the sound waves are mechanical waves they requires medium for propagation.

12. (c)

Sol. As per fig.



$\lambda + \lambda + \lambda/2 = 20$ cm

or $\frac{5\lambda}{2} = 20$

$\therefore \lambda = 8$ cm $= 0.08$ m

$\because v = n\lambda$

$\therefore 320 = n\,(0.08)$

$\therefore n = \frac{320}{0.08} = 4000$ Hz

13. (b)

Sol. Frequency of wave will not change

$v = n\lambda$

$n \to$ const.

$v \propto \lambda$

$\frac{v_{air}}{v_{glass}} = \frac{\lambda_{air}}{\lambda_{glass}} = \frac{330}{5400} = \frac{\lambda_{air}}{90}$

14. (b)

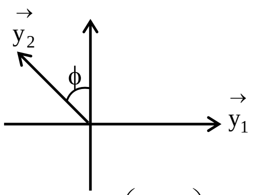
Sol. Relation between phase difference and path difference

$\Delta\phi = \frac{2\pi}{\lambda}\Delta x$

$y_1 = a_1 \sin(\omega t - kx)$

$y_2 = a_2 \cos(\omega t - kx + \phi)$

From phasor diagram : -



$\Delta\phi = \left(\frac{\pi}{2} + \phi\right)$

$\Delta x = \frac{\Delta\phi}{2\pi} \times \lambda$

$= \frac{1}{2\pi}\left(\frac{\pi}{2} + \phi\right)\lambda$

15. (c)

Sol. $n - \frac{1}{2(0.5)}\sqrt{\frac{T}{m}} = 4$ or $\frac{1}{2(0.5)}\sqrt{\frac{T}{m}} = n - 4$ ...(1)

if length is shortened by 1 cm.

$\frac{1}{2(0.49)}\sqrt{\frac{T}{m}} - n = 4$ or $\frac{1}{2(0.49)}\sqrt{\frac{T}{m}} = n + 4$ ...(2)

Divide (1) and (2)

$\frac{49}{50} = \frac{n-4}{n+4}$

$\therefore 49n + 196 = 50n - 200$

$n = 396$ Hz

16. (b)

Sol. If Ist resonance occurs at $\frac{\lambda}{4} = 20$

next will be at $\frac{3\lambda}{4} = 3 \times 20 = 60$ cm

17. (b)

Sol. For open organ pipe

$\nu_1 = \frac{2v}{2\ell_1} = \frac{v}{\ell_1}$

for closed organ pipe

$\nu_0' = \frac{v}{4\ell_2}$

$\nu_1 - \nu_0' = 5$ Hz $\Rightarrow \frac{v}{\ell_1} - \frac{v}{4\ell_2} = 5$ Hz

$\Rightarrow \ell_1 = 98.5$ cm

or $\nu_0 - \nu_1 = 5$Hz $\Rightarrow \frac{v}{4\ell_2} - \frac{v}{\ell_1} = 5$ Hz

$\Rightarrow \ell_1 = 101.5$ cm

18. (b)

Sol. $\frac{I_{max}}{I_{min}} = \frac{(a_1 + a_2)^2}{(a_1 - a_2)^2}$

19. (b)

Sol. $\frac{v_s}{v_{rms}} = \sqrt{\frac{\gamma}{3}}$ $\quad \therefore v_{rms}^2 = \frac{3}{\gamma} \times v_s$

20. (a)

Sol. $\phi = \frac{\pi}{2}$ $\quad \because \cos\theta = \sin[\pi/2 + \theta]$

21. (c)

Sol. For natural frequency of string

$\nu_n \propto \frac{1}{L}$

$\Rightarrow \frac{\nu_A}{\nu_B} = \frac{97}{96}$ ... (i)

Also, $\nu_A - \nu_B = 4$ ... (ii)

$\because$ Beat frequency = 4
From (i) and (ii),
$\nu_A = 388$, $\nu_B = 384$

22. (c)
Sol. Particle which vibrate in opposite phase having different velocity but having same speed.

23. (d)
Sol. In consecutive compressions and rarefactions there is no transfer of heat.

24. (c)
Sol. Resultant amplitude

$$= \sqrt{3^2 + 4^2} = \sqrt{9+16} = 5\text{cm}$$

25. (d)
Sol. The basic requirement for a wave functions to represent a travelling wave is that for all values of x and t wave functions must have a finite value.
Out of the given functions for y no one satisfied this conditions. Therefore none can represent a travelling wave.

26. (a)
Sol. The given equations of a stationary wave is

$$y = 5\sin\frac{2\pi}{3}x\cos 40\pi t \qquad \text{....(i)}$$

The standard equations of a stationary wave is

$$y = 2a\ \sin kx\cos\omega t \qquad \text{....(ii)}$$

Comparing (i) and (ii), we get

$$k = \frac{2\pi}{3}$$

Or $\frac{2\pi}{3} = \frac{2\pi}{3}$ or $\lambda = 3\text{cm}$

Separations between two adjacent nodes is

$$\frac{\lambda}{2} = \frac{3}{2} = 1.5\text{cm}$$

27. (b)
Sol. Since the two waves are identical, they have same
amplitudes.
The amplitude of the resultant wave is

$$A = 2a\cos\frac{\phi}{2}$$

Here, a = 10 mm, $\phi = 120°$

$$A = 2\ (10\ \text{mm})\cos\frac{120°}{2}$$

$$= 2\times 10\times\frac{1}{2}\text{mm} = 10\text{mm}$$

28. (b)
Sol. Here, $\lambda_A = 100\,\text{mm} = 0.10\text{m}$

$$\lambda_B = 0.25\text{m}$$

$$v_A = 80\text{cms}^{-1} = 0.80\text{ms}^{-1}$$

As the frequency of the wave remains same in the two media.

$$\therefore \upsilon = \frac{v_A}{\lambda_B} = \frac{v_B}{\lambda_B}$$

$$\therefore v_B = \frac{\lambda_B}{\lambda_A}\times v_A = \frac{0.25}{0.10}\times 0.80$$

$$\Rightarrow V_B = 2\text{ms}^{-1}$$

29. (c)
Sol. Speed of sound in air is

$$v = \sqrt{\frac{\lambda RT}{M}}$$

Where T is the absolute temperature.
Since γ and M are constant.

$$\therefore v \propto \sqrt{T}$$

$$\Rightarrow \frac{v_t}{v_0} = \sqrt{\frac{273+t}{273}}$$

$$\frac{3v_0}{v_0} = \sqrt{\frac{273+t}{273}}$$

Squaring both sides, we get

$$9 = \frac{273+t}{273}\text{ or } 2457 = 273+t \text{ or } t = 2184°\text{C}$$

30. (a)

Sol. Velocity of te4h sound in gas

$$v = \sqrt{\frac{\gamma RT}{M}}$$

Where the symbols have their usual meanings.
All the given gases are diatomic and are at same temperature,

$$\therefore v \propto \frac{1}{\sqrt{M}}$$

31. (c)

Sol. Here, $v_{air} = 350\ ms^{-1}, v_{brass} = 3500\ ms^{-1}$

When a sound wave goes from one medium to another medium, its frequency (υ) remains the same.

Frequency, $\upsilon = \frac{\text{Velocity}}{\text{Wavelength}} = \frac{v}{\lambda}$

Since υ remains the same in both the media, so

$$\frac{V_{air}}{\lambda_{air}} = \frac{V_{brass}}{\lambda_{brass}}$$

Or $\lambda_{brass} = \lambda_{air} \times \frac{v_{brass}}{v_{air}} = \lambda_{air} \times \frac{3500}{350} = 10\lambda_{air}$

32. (b)

Sol. $y_1 = a\sin(kx - \omega t)$

$y_2 = a\sin(kx + \omega t)$

According to the principle of superposition, the resultant wave is

$y = y_1 + y_2$

$= a\sin(ks - \omega t) + a\sin(kx + \omega t)$

Using trigonometric identity

$\sin(A+B) + \sin(A-B) = 2\sin A\cos B$

We get $y = 2a\sin kx\cos\omega t$

33. (b)

Sol. Here,

Speed of sound, v = $330 ms^{-1}$

Length of pipe,

$L = 30cm = 30\times10^{-2} m$

In a open pipe (open at both ends), the frequency of its n^{th} harmonic is

$$\upsilon_n = \frac{nv}{2L} \text{ where } n = 1,2,3,\ldots\ldots$$

$$\therefore n = \frac{2L\upsilon_n}{v}$$

Let n^{th} harmonic of open pipe resonate with $1.1kHz$ Source.

$\therefore \upsilon_n = 1.1kHz = 1.1\times10^3 Hz$

$$\therefore n = \frac{2\times30\times10^{-2}\times1.1\times10^3}{330} = 2$$

34. (b)

Sol. Tuning fork of 256 Hz. Will resonate with fork

frequencies $1\times256, 2\times256, 3\times256$ etc.

256Hz, 512Hz, 768 Hz etc.

35. (c)

Sol. Here, $\upsilon = 100kHz = 100\times10^3 Hz$

$= 10^5 Hz = 10^5 s^{-1}$

$v_a = 340\ ms^{-1}, v_w = 1500\ ms^{-1}$

Frequency of both the reflected and transmitted sound remains unchanged.

Wavelength of reflected sound.

$$\lambda_a = \frac{v_a}{\upsilon} = \frac{340\ m s^{-1}}{10^5 s^{-1}} = 34\times10^{-4} m$$

$= 3.4\times10^{-3} m = 3.4mm$

Wavelength of transmitted sound,

$$\lambda_w = \frac{v_w}{\upsilon} = \frac{1500\ ms^{-1}}{10^5 s^{-1}} = 15\times10^{-3} m = 15mm$$

36. (b)

Sol. When the string vibrates in loops n, its frequency is

$$\upsilon_n = \frac{nv}{2L}$$

Where L is the length of the string and v is the velocity of the wave.

$\therefore$ When the string fixed at its both ends vibrates in 1 loop, 2 loop, 3 loops and 4 loops, the frequencies are in the ratio 1 : 2 : 3 : 4.

37. (d)

Sol. End correction $= \frac{L_2 - 3L_1}{2}$

$= \frac{101.8 - 3\times 33.4}{2}$

$= \frac{1.6}{2} = 0.8\text{cm}$

Speed of sound

$v = 2\upsilon(L_2 - L_1)$

$= 2\times 256\times(1.018 - 0.334)$

$= 2\times 256\times 0.684 = 350.2\text{ms}^{-1}$

38. (b)

Sol. At the node the pressure change in maximum while the displacement is minimum.

39. (c)

Sol. An organ pipe of length L open at both ends vibrates with frequencies given by

$\upsilon_n = \frac{nv}{2L}$ where n = 1,2,3,4,………

The fundamental frequency corresponds to n = 1 and is given by

$\upsilon_1 = \frac{v}{2L}$

In an open pipe all harmonics are present

40. (c)

Sol. Let L be length of pipe

Fundamental frequency of closed pipe is

$\upsilon_C = \frac{v}{4L}$ …… (i)

Where v is the speed of sound in air.

Fundamental frequency of open pipe of same length is

$\upsilon_O = \frac{v}{2L}$ ……. (ii)

Divide (ii) by (i), be get

$\frac{\upsilon_O}{\upsilon_C} = 2$

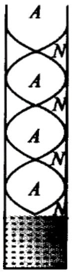
Or $\upsilon_O = 2\upsilon_C = 2\upsilon$

41. (d)

Sol. In case of a travelling wave, the reflections at a rigid boundary will taken place with a phase reversal or with a phase change of π or $180°$.

42. (d)

Sol. The end in contact with water is a node while the open end is an antinode.



In the present case, tube is in seventh harmonic.

43. (d)

Sol. The phenomenon of beats can take place for both

longitudinal an transverse waves.

44. (d)

Sol. When an observer moves towards a stationary source, the apparent frequency heard by the observer is

$\upsilon' = \upsilon_0\left(\frac{v + v_O}{v}\right)$

Where

υ_O = Frequency of the source

v_O = Velocity of the observer

V = velocity of the sound

$\therefore \upsilon' = \upsilon_0\left(\frac{v + \frac{v}{5}}{v}\right) = \frac{6\upsilon_0}{5}$

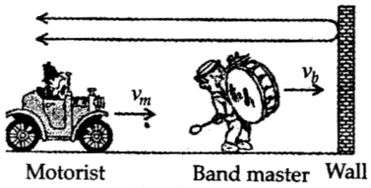
Percentage changes in apparent frequency

$= \frac{\upsilon' - \upsilon_0}{\upsilon_0}\times 100$

$= \frac{\left(\frac{6\upsilon_0}{5} - \upsilon_0\right)}{\upsilon_0}\times 100\frac{1}{5}\times 100 = 20\%$

45. (c)

Sol. The motorist receives two sound waves : direct one and that reflected from the wall.



For direction sound waves,

$$\upsilon' = \frac{v + v_m}{v + v_b}\upsilon$$

For reflected sound waves,

Frequency of sound wave reflected from the wall

$$\upsilon' = \frac{v}{v - v_b} \times \upsilon$$

Frequency of the reflected waves as received by the moving motorist

$$\upsilon''' = \frac{v + v_m}{v} \times \upsilon'' = \frac{v + v_m}{v - v_b} \times \upsilon$$

$\therefore$ Beat frequency $= \upsilon''' - \upsilon'$

$$= \frac{v + v_m}{v - v_b} \times \frac{v + v_m}{v + v_b}\upsilon = \frac{2v_b(v + v_m)}{v^2 - v_b^2}\upsilon$$

46. (c)

Sol. $S + O_2 \rightarrow SO_2$

47. (d)

Sol. H_2O H_2S H_2Se H_2Te

104.5^o 92.1^o 91^o 90^o

As we go down the group electronegativity decreases due to which repulsion between bonded pairs of electron also decreases. Hence, bond angle decreases.

48. (a)

Sol. Paramagnetism because of two unpaired electrons in the antibonding molecular orbitals.

49. (a)

Sol. $2Na_2SO_3 + O_2 \rightarrow 2Na_2SO_4$

50. (c)

Sol. $3O_2 \underset{\text{electric discharge}}{\overset{\text{silent}}{\rightleftharpoons}} 2O_3$

51. (b)

Sol. $O_3 \rightarrow O_2 + [O]$

$2KI + H_2O + [O] \rightarrow 2KOH + I_2$

$2KI + H_2O + O_3 \rightarrow 2KOH + I_2 + O_2$

52. (d)

Sol. $2KMnO_4 + 3H_2SO_4 + 5H_2S \rightarrow K_2SO_4 + 2MnSO_4 + 8H_2O + 5S$

53. (a)

Sol. $Cu + 2H_2SO_4 \rightarrow CuSO_4 + 2H_2O + SO_2$

54. (a)

Sol. The minimum and maximum oxidation number of S are –2 and +6 respectively. Since the oxidation number of S in SO_2 is +4, therefore it can be either increased or decreased. Therefore SO_2 behaves both as an oxidising as well as reducing agent.

55. (a)

Sol. $\underset{\text{reducing agent}}{2H_2S} + \underset{\text{oxidising agent}}{SO_2} \rightarrow 2H_2O + 3S$

56. (d)

Sol. Iodine has the least affinity for water and is only slightly soluble in it. However, it dissolves in 10% aq. solution of KI due to the formation of a complex ion i.e. I_3^-.

$I_2 + KI \rightleftharpoons KI_3$ or $I_2 + I^- \rightleftharpoons I_3^-$ (complex ion).

57. (c)

Sol. $2Na_2S_2O_3 + I_2 \rightarrow 2NaI + Na_2S_4O_6$

58. (a)

Sol. $Cl_2 + 2KBr \rightarrow 2KCl + Br_2$

A more electronegative halogen can displaces less electronegative halogen.

59. (a)

Sol. HI is the strongest reducing agent among halogen acids because of lowest bond dissociation energy.

60. (a)

Sol. Due to H-Bonding free ions are not present in aq. solution. Hence, bad conductor.

61. (c)

Sol. Electronegativity of I_2 is less than Br_2. Therefore

unable to displace bromine.

62. (b)

Sol. Carnellite is $KCl.MgCl_2.6H_2O$. The mother liquor life after crystallisation of KCl from carnellite contain about 0.25% of bromine as $MgBr_2$ and KBr.

63. (a)

Sol. HF is liquid because of intermolecular H-Bonding.

64. (a)

Sol. $\underset{\text{Weak acid}}{HClO} \rightleftharpoons H^+ + \underset{\text{Strong conjugate base}}{ClO^-}$

65. (d)

Sol. $\underset{\text{(dil.)}}{2NaOH} + Cl_2 \xrightarrow{\text{Cold}} NaCl + \underset{\text{Sod. hypochlorite}}{NaClO} + H_2O$

$\underset{\text{(conc.)}}{6NaOH} + 3Cl_2 \xrightarrow{\text{heat}} 5NaCl + \underset{\text{Sodium chlorate}}{NaClO_3} + 3H_2O$

66. (d)

Sol. All the noble gases are monoatomic, colourless and odourless gases. Their monoatomic nature is due to the stable outer configuration ns^2np^6 of their atoms. As a result, they do not enter into chemical combination even amongst

themselves.

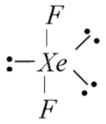
67. (b)

Sol. An oxygen-helium mixture is used artificial respiration in deep sea diving instead of air because nitrogen present in air dissolves in blood under high pressure when sea diver goes into deep sea. When he comes to the surface, nitrogen bubbles out of the blood due to decrease in pressure, causing pains. This disease is called "bends".

68. (c)
Sol. XeF_2 , $XeOF_2$. XeF_4 , $XeOF_4$. XeF_6 , XeO_3 .

69. (b)
Sol. HeF_4 does not exist.

70. (d)
Sol. XeF_2 has sp^3d –hybridization with linear shape.



71. (c)
Sol. Sodium oxalate react with conc. H_2SO_4 to form CO and CO_2 gas.

72. (d)
Sol. $K_2Cr_2O_7 + H_2SO_4 + 3SO_2 \rightarrow$
$K_2SO_4 + \underset{\text{Green}}{Cr_2(SO_4)_3} + 3H_2O$

73. (a)
Sol. $SO_2 + 2Mg \rightarrow 2MgO + S$

74. (c)
Sol. $H_2SO_3 + 2NaOH \rightarrow \underset{\text{Sodium sulphite}}{Na_2SO_3} + 2H_2O$

75. (b)
Sol. $6KOH + 3Cl_2 \rightarrow 5KCl + KClO_3 + 3H_2O$.

76. (a)
Sol. HF is the weakest acid. Since it is unable to give H^+ ions which are trapped in H-Bonding.

77. (b)
Sol.

Hydride –	HF	HCl	HBr	HI
B.pt (in K) –	293	189	206	238

Becouse of having low b.p. HCl is more volatile.

78. (a)
Sol. $2KClO_3 + I_2 \rightarrow 2KIO_3 + Cl_2$

79. (b)
Sol. Partial hydrolysis;
$XeF_4 + H_2O \rightarrow XeOF_2 + 2HF$
Complete hydrolysis;
$2XeF_4 + 3H_2O \rightarrow Xe + XeO_3 + F_2 + 6HF$

80. (a)
Sol. OF_2 is called as oxygen fluoride

81. (a)
Sol. As boiling point decreases volatility increases.

82. (a)
Sol. Due to small size He does not form clathrate

83. (a)
Sol. Because highest difference in electronegativity the dipole moment of HF is the highest.

84. (a)
Sol. Because of the greater difference in electronegativity the bond dissociation enthalpy of HF is the highest.

85. (d)
Sol. The general formula of the inter halogen compounds are AX, AX_3, AX_5 & AX_7

86. (b)
Sol. $SiO_2 + 4HF \longrightarrow SiF_4 + 2H_2O$;
$SiF_4 + 2HF \longrightarrow H_2SiF_6$

87. (c)
Sol. $SO_3^{2-} + 2H^+ \rightarrow H_2O + SO_2$
$Ba(OH)_2 + SO_2 \rightarrow BaSO_3 + H_2O$
(Insoluble turbidity)
$K_2Cr_2O_7 + H_2SO_4 + SO_2 \rightarrow K_2SO_4 + Cr_2(SO_4)_3 + H_2O$

88. (d)
Sol. s-block & p-block elements collectively comprise the
representative elements. The valence shell electronic configuration of halogen is ns^2 np^5 and the last electron
enters in p-subshell. Thus, halogens belongs to p-block elements.

89. (a)
Sol. HF has highest boiling point on account of intermolecular hydrogen bonding. But from HCl to HI the boiling point show a regular increase due to a corresponding increase in the magnitude of van der Waal's force of attraction as the size of the halogen increases.

90. (b)
Sol. The X-X bond disassociation enthalpies from chlorine onwards show the expected trend : Cl – Cl > Br – Br > F – F > I – I. The reason for the smaller enthalpy of dissociation of F_2 is the relatively larger electrons-electrons repulsion among the lone pairs in F_2 molecule where they are much closer to each other than in case of Cl_2.

BIOLOGY ANS KEY.

Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.	Q.No.	Ans.
91	C	109	C	127	C	145	B	163	A
92	C	110	D	128	B	146	D	164	A
93	A	111	C	129	C	147	B	165	B
94	C	112	C	130	A	148	A	166	B
95	A	113	D	131	D	149	A	167	B
96	D	114	B	132	B	150	A	168	D
97	C	115	A	133	A	151	C	169	A
98	A	116	B	134	A	152	B	170	A
99	A	117	A	135	D	153	A	171	A
100	B	118	C	136	C	154	C	172	D
101	B	119	C	137	C	155	C	173	C
102	D	120	D	138	A	156	B	174	A
103	B	121	D	139	C	157	C	175	C
104	A	122	A	140	D	158	C	176	A
105	B	123	C	141	A	159	D	177	C
106	D	124	C	142	D	160	C	178	B
107	C	125	A	143	D	161	A	179	B
108	A	126	B	144	D	162	D	180	C