



MOCK TEST - 2

TARGET : PRE-MEDICAL 2023

Test Type : MOCK

Test Pattern : NEET (UG)

ANSWER KEY

Q.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
A.	2	1	3	1	4	4	2	3	4	1	2	4	4	2	2	2	1	2	2	3	1	3	4	4	4	3	3	2	4	4
Q.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
A.	3	1	4	4	1	3	4	3	3	4	3	3	1	1	2	2	2	4	3	1	3	4	2	4	2	2	1	1	4	3
Q.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
A.	1	2	3	3	2	1	1	2	2	1	3	2	3	2	2	3	3	3	1	1	1	2	1	2	2	2	3	4	2	1
Q.	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
A.	2	2	1	4	2	4	4	1	3	3	3	4	3	1	4	3	2	4	1	3	1	1	3	1	2	3	1	3	4	3
Q.	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
A.	4	3	3	1	3	3	4	2	2	1	1	3	4	1	4	2	1	1	3	2	2	2	4	3	2	1	2	1	1	1
Q.	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
A.	4	3	2	4	1	3	2	1	1	4	1	3	1	2	2	2	2	4	3	2	4	2	3	2	4	4	4	2	2	2
Q.	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200										
A.	4	3	1	2	1	2	1	3	3	4	1	4	3	1	4	2	4	3	1	3										

HINT – SHEET

SUBJECT : PHYSICS

SECTION-A

1. Ans (2)

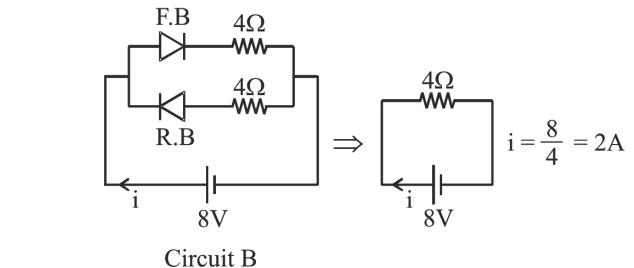
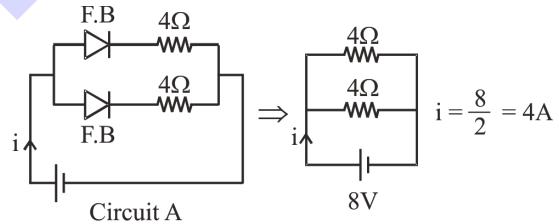
$$\alpha = \frac{q}{4\pi r^2} \quad \frac{\sigma_1}{\sigma_2} = \left(\frac{r_2}{r_1} \right)^2$$

2. Ans (1)

$$\omega = \omega_0 + \alpha t$$

$$\Rightarrow \frac{180 \times 2\pi}{60} = 0 + \alpha(10) \Rightarrow \alpha = \frac{3\pi}{5}$$

3. Ans (3)



4. Ans (1)

$$\vec{r}_{cm} = \frac{m_1 \vec{r}_1 + m_2 \vec{r}_2}{m_1 + m_2}$$

5. **Ans (4)**

$$P = \frac{1}{f} = (\mu - 1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

6. **Ans (4)**

$$V_T = \frac{2}{9} \frac{r^2(\rho - \sigma) \times g}{\eta}$$

$$(6.5 \times 10^{-2}) = \frac{2}{9} \times \frac{(2 \times 10^{-3})^2 \times [8.9 - 1.7] \times 10^3 \times 10}{\eta}$$

$$\eta = \frac{2 \times 4 \times 7.2}{9 \times 6.5} = 0.99 \text{ Kg m}^{-1} \text{s}^{-1}$$

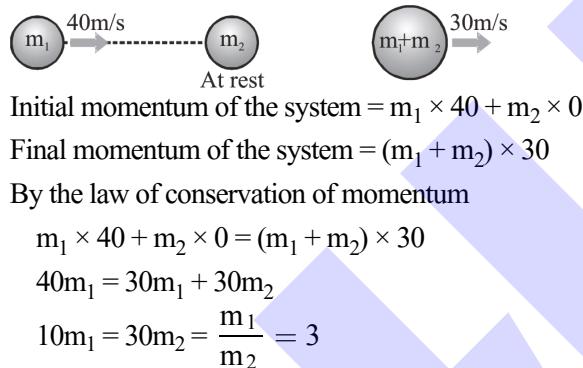
7. **Ans (2)**

$$I_{yy'} = I_C + M(2R)^2 = \frac{2}{3}MR^2 + 4MR^2$$

$$\Rightarrow I_{yy'} = \frac{14}{3}MR^2 = MK^2$$

$$K = \sqrt{\frac{14}{3}} \cdot R$$

8. **Ans (3)**



9. **Ans (4)**

$$B = \frac{\mu_0 Ni}{2R}$$

$$B = \frac{(4\pi \times 10^{-7})(100)(10^{-3})}{2 \times 5\pi \times 10^{-2}} = 4 \times 10^{-7} \text{ T}$$

10. **Ans (1)**

$$\tan\theta = \mu \Rightarrow \mu = \tan 60^\circ$$

$$\mu = \sqrt{3}$$

11. **Ans (2)**

Excess pressure in air bubble just below the water surface. $P_1 = \frac{2T}{r}$

Excess pressure inside a drop $P_2 = \frac{2T}{r}$

So $P_1 = P_2$

14. **Ans (2)**

Let resistance of each heater is R

$$H_1 = \left[\frac{V^2}{(R/2)} \right] t \quad \dots\dots (1)$$

$$H_2 = \left[\frac{V^2}{2R} \right] t \quad \dots\dots (2)$$

$$\text{So } \frac{H_1}{H_2} = \frac{4}{1}$$

15. **Ans (2)**

(a) In $\lambda = \frac{h}{p}$ equation \rightarrow

λ is characteristic of wave & p (momentum) is characteristic of particle.

characteristic of particle.

(b) Mass of macroscopic particles is high so de-Broglie wavelength is very small.

(c) $\lambda = \frac{h}{p}$ is applicable for material particle & photons as well.

16. **Ans (2)**

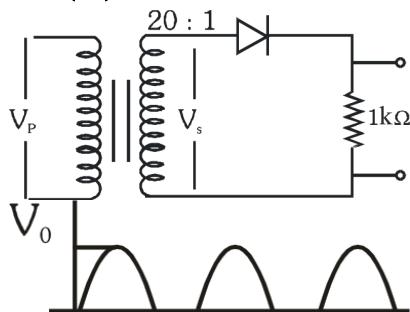
$$hv_1 = hv_0 + \frac{1}{2}mv_1^2$$

$$hv_2 = hv_0 + \frac{1}{2}mv_2^2$$

$$\therefore h(v_1 - v_2) = \frac{1}{2}m(v_1^2 - v_2^2)$$

$$\therefore v_1^2 - v_2^2 = \frac{2h}{m}(v_1 - v_2)$$

17. **Ans (1)**



$$\therefore \frac{n_p}{n_s} = \frac{V_p}{V_s}$$

$$\Rightarrow V_s = \frac{n_s}{n_p} \times V_p = \frac{1}{20} \times 220 = 11 \text{ V(peak)}$$

$$\text{Here } V_0 = 11 \text{ V so } V_{RMS} = \frac{V_0}{2} = \frac{11}{2} = 5.5 \text{ V}$$

$$I_{RMS} = \frac{5.5}{10k} = 0.55 \text{ mA}$$

18. Ans (2)

For adiabatic process

$$\text{slope} = -\gamma \left(\frac{P}{V} \right)$$

$$\gamma_{\text{He}} > \gamma_{\text{O}_2} \Rightarrow (\text{slope})_{\text{He}} > (\text{slope})_{\text{O}_2}$$

20. Ans (3)

$$\begin{aligned} \text{Displacement} &= \text{area under curve} = 2 \times 3 + 1 \times 6 \\ &= 12 \text{ m} \end{aligned}$$

$$V_{\text{avg}} = \frac{\text{total displacement}}{\text{total time}} = \frac{12}{4} = 3 \text{ m/s}$$

21. Ans (1)

$$\beta_{\text{water}} = \frac{B_{\text{air}}}{\mu} = \frac{0.4}{4/3} = 0.3 \text{ mm}$$

22. Ans (3)

Given root mean square voltage

$V_{\text{rms}} = 220 \text{ V}$ Peak voltage will be given by,

$$V_{\text{peak}} = \sqrt{2} V_{\text{rms}}$$

$$V_{\text{peak}} = \sqrt{2}(220)$$

$$V_{\text{peak}} \approx 310 \text{ V}$$

23. Ans (4)

$$n = \frac{1}{21} \sqrt{\frac{T}{m}} \Rightarrow n \propto \sqrt{T} \quad \text{For octave, } n' = 2n$$

$$\Rightarrow \frac{n'}{n} = \sqrt{\frac{T'}{T}} = 2 \Rightarrow T' = 4T = 16 \text{ kg-wt}$$

25. Ans (4)

Semiconductors have negative temp. coefficient
temp \uparrow $\rho \downarrow \sigma \uparrow$

temp \downarrow $\rho \uparrow \sigma \downarrow$

26. Ans (3)

At the surface of the earth, the weight of the person.

$$W = mg = \frac{mGM}{R^2}$$

At a height h

$$\text{Weight } W' = mg' = \frac{mGM}{(R+h)^2}$$

$$\therefore \frac{W'}{W} = \frac{R^2}{(R+h)^2}$$

When $h = R$,

$$\frac{W'}{W} = \frac{R^2}{(2R)^2} = \frac{1}{4}$$

27. Ans (3)

$$V = iR \Rightarrow V = 10 \times 5 = 50$$

$$E = \frac{V}{l} \Rightarrow E = \frac{50}{2} = 25 \text{ N/C}$$

29. Ans (4)

$$P = \frac{mgh}{t} = \frac{100 \times 9.8 \times 50}{50} = 980 \text{ J/s}$$

30. Ans (4)

$$\sin \theta_C = \frac{V_D}{V_r} = \frac{1.8}{2.4} = \frac{3}{4}$$

$$\theta_C = \sin^{-1} \frac{3}{4}$$

31. Ans (3)

Nuclear radius $r \propto A^{1/3}$

Hence $A \propto r^3$. Since density = Mass/Volume
Mass $\propto A$. Also volume $\propto r^3$.

Hence Mass/volume = constant.

32. Ans (1)

$$\begin{aligned} \langle U \rangle &= \frac{1}{2} \epsilon_0 E_0^2 \\ &= 1.1 \times 10^{-8} \text{ J/m}^3 \\ &\approx 10^{-8} \text{ J/m}^3 \end{aligned}$$

33. Ans (4)

Let there be x α -particles and y β -particles
 $Z X^A \rightarrow x He_2^4 + y \beta_{-1}^0 + Y_{Z-3}^{A-8}$

then equating the mass numbers

$$A = 4x + A - 8 \quad \dots(i)$$

and equating atomic number

$$Z = 2x - y + Z - 3 \quad \dots(ii)$$

Solving eqns. (i) and (ii), we get:

$$x = 2 \text{ and } y = 1$$

\therefore The number of α and β particles emitted are 2 and 1 respectively.

34. Ans (4)

Consider Self inductance (L)

$$\frac{1}{2} L I^2 = \text{energy}$$

$$L = \frac{2 \times \text{energy}}{I^2}$$

(Inductance) =

$$\left[\frac{ML^2 T^{-2}}{A^2} \right] = [ML^2 T^{-2} A^{-2}]$$

Given dimension $[ML^2 T^{-2} A^{-1}]$

= [Inductance] \times [Current]

= LI = Magnetic flux

SECTION-B

36. Ans (3)

$$P = \frac{mRT}{MV}$$

$$\Rightarrow P = \frac{2 \times 8.314 \times 300}{2 \times 0.02}$$

$$\Rightarrow P = 1.24 \times 10^5 \text{ Pa}$$

38. Ans (3)

$$(q_1)_1 = 900 \mu\text{C}; (q_2) = 400 \mu\text{C}$$

$$V_{\text{COM}} = \frac{C_1 V_1 - C_2 V_2}{C_1 + C_2} = \frac{900 - 400}{5} = 100 \text{ Volt}$$

$$(q_1)_f = 100 \times 3 = 300 \mu\text{C}$$

$$\text{charge flown} = 900 - 300 = 600 \mu\text{C}$$

39. Ans (3)

According to Kepler's first law, all planets move in elliptical orbits with the sun situated at one of the foci.

A - r

Kepler's second law is a consequence of law of conservation of angular momentum.

B - s

According to Kepler's third law, the square of the time period of revolution of a planet is proportional to the cube of semi-major axis of the ellipse traced out by the planet.

$$T^2 \propto a^3$$

C - p

According to Newton's law of gravitation, everybody in the universe attracts every other body with a force which is directly proportional to the product of their masses and inversely proportional to the square of the distance between them.

D - q

40. Ans (4)

$$\Delta L = \frac{WL}{AY} = \frac{\sigma L}{Y}$$

$$\frac{\Delta L}{L} = \frac{W}{AY} \quad \epsilon = \frac{\sigma}{Y}$$

ΔL v/s σ , ΔL v/s W , σ v/s ϵ , all will be linear

41. Ans (3)

As horizontal component of velocity is same at all the time

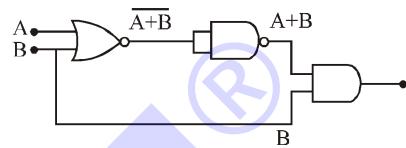
$$u \cos 30^\circ = 20 \cos 60^\circ$$

$$u \frac{\sqrt{3}}{2} = 20 \times \frac{1}{2} = 10$$

$$u = \frac{20}{\sqrt{3}} \text{ ms}^{-1}$$

The correct option is (3)

42. Ans (3)

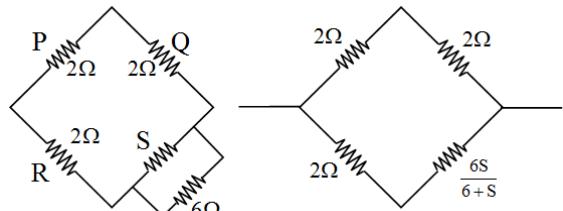


$$\begin{aligned} y &= (A+B)B \\ &= AB + B.B \\ &= AB + B \\ &= (A+1)B \\ &= B \end{aligned}$$

43. Ans (1)

$$\begin{aligned} \omega &= \frac{1}{\sqrt{LC}} = \frac{1}{\sqrt{8 \times 10^{-3} \times 20 \times 10^{-6}}} \\ &= \frac{10000}{4} = 2500 \text{ rad/s} \\ I_0 &= \frac{E_0}{R} = \frac{220\sqrt{2}}{44} = 5\sqrt{2}A \end{aligned}$$

44. Ans (1)



$$\frac{2}{2} = \frac{2}{\left(\frac{6S}{6+S}\right)} \Rightarrow \frac{6S}{6+S} = 2 \Rightarrow 3S = 6 + S \Rightarrow S = 3\Omega$$

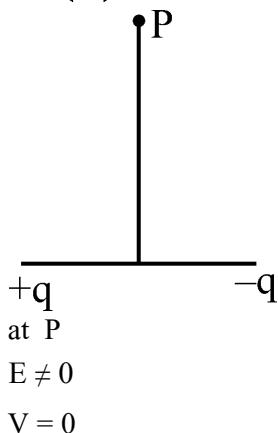
45. Ans (2)

Applying Ampere's law $\oint \mathbf{B} \cdot d\mathbf{l} = \mu_0 i$ to any closed path inside the pipe we find no current is enclosed. Hence $B = 0$.

46. Ans (2)

$$\epsilon = \frac{1}{2} B \omega l^2 = 5 \times 10^{-5} \text{ V} = 50 \mu\text{V}$$

47. **Ans (2)**



48. **Ans (4)**

$$\frac{\Delta E_1}{\Delta E_2} = \frac{\frac{1}{3^2} - \frac{1}{4^2}}{\frac{1}{8^2} - \frac{1}{9^2}} = \frac{16 - 9}{81 - 64} \times \frac{64 \times 81}{9 \times 16}$$

or $\frac{\Delta E_1}{\Delta E_2} = \frac{7}{17} \times \frac{9 \times 4}{1} = 14.82$

49. **Ans (3)**

$$\phi = \vec{B} \cdot \vec{A}$$

$$\phi = \vec{B} \cdot (L^2 \hat{k})$$

$$= 4B_0 L^2 W b$$

50. **Ans (1)**

$$\Delta\phi = \frac{2\pi}{\text{Time period}} \times \Delta t$$

$$\Delta\phi_1 = \frac{2\pi}{T} \times T = 2\pi$$

$$\Delta\phi_2 = \frac{2\pi}{5T/4} \times T = \frac{8\pi}{5}$$

∴ Phase difference = $2\pi - \frac{8\pi}{5} = \frac{2\pi}{5}$

SUBJECT : CHEMISTRY

SECTION-A

51. **Ans (3)**

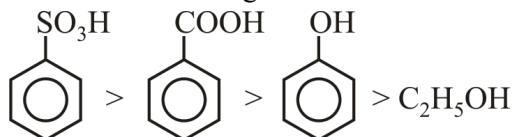
Amines	p k_b
NH ₃	4.75
C ₂ H ₅ NH ₂	3.29
(C ₂ H ₅) ₂ NH ₂	3.00
PhNH ₂	9.38

52. **Ans (4)**

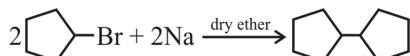
Phenol on reaction with Br₂-H₂O gives white ppt of 2,4,6-Tribromophenol.

53. **Ans (2)**

Correct acidic strength order



54. **Ans (4)**



56. **Ans (2)**

Analgesic used to get relief from pain.

58. **Ans (1)**

Gases expand because there is no force of attraction between the particles of a gas.

59. **Ans (4)**

In Schottky defect equal number of cations and anions are missing from their lattice sites.

60. **Ans (3)**

$$\eta_{\text{solvent}}(\text{octane}) = \frac{114}{114} = 1$$

$$\text{and } \eta_{\text{solute}} = \frac{w}{40}$$

$$\frac{P^\circ - P_S}{P_S} = \frac{\eta_{\text{solute}}}{\eta_{\text{solvent}}}$$

$$\Rightarrow \frac{100 - 80}{80} = \frac{w/40}{1}$$

$$\Rightarrow w = 10\text{g}$$

61. **Ans (1)**

On doubling volume, concentration becomes half so rate becomes one fourth.

62. **Ans (2)**

$$N = M \times \text{v.f.} = 1 \times 2 = 2$$

$$\Lambda_{\text{eq}} = \frac{34 \times 10^{-2} \times 1000}{2} \\ = 170 \Omega^{-1} \text{cm}^2 \text{eq}^{-1}$$

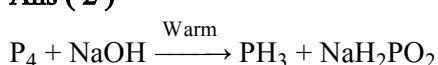
63. **Ans (3)**

Rain cloud (Aerosol), Butter (Emulsion), Opal (Gel), Minerals (solid sol)

73. **Ans (3)**

They have low melting point

74. **Ans (2)**



75. Ans (2)

Fe^{+3} is more para than Fe^{+2}

$\text{Ni}(\text{CO})_4 - \text{sp}^3$

Cu – 2nd O-S is highest,

Mn → +7 (highest)

76. Ans (3)

$\text{Si}_2\text{O}_7^{6-}$

77. Ans (3)

Stability of +2 oxidation state order

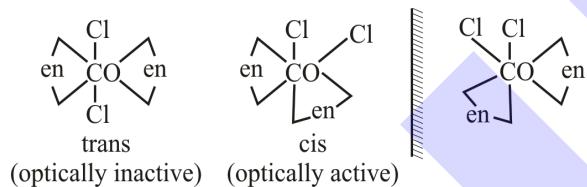
= $\text{C}^{2+} < \text{Si}^{2+} < \text{Ge}^{2+} < \text{Sn}^{2+} < \text{Pb}^{2+}$

79. Ans (1)

Correct order =

$\text{BiH}_3 > \text{SbH}_3 > \text{NH}_3 > \text{AsH}_3 > \text{PH}_3$

80. Ans (1)



81. Ans (1)



82. Ans (2)

Atomic radius order =

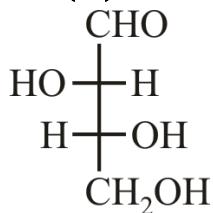
$\text{N}^{-3} > \text{O}^{-2} > \text{F}^{-} > \text{Na}^{+}$ (Isoelectronic)

SECTION-B

89. Ans (2)

Polymer	Monomer
Novolac	Phenol and formaldehyde
Glyptal	Ethylene Glycol and phthalic acid
Buna-S	1,3-butadiene and styrene
Teflon	Tetrafluoroethylene

90. Ans (1)



–OH group on right hand side of last chiral centre.

91. Ans (2)

For isothermal process $\Delta U = 0$ so $q = -W$

$$W = -P_{\text{ex}}(V_2 - V_1)$$

$$= -P_{\text{ex}} \left(\frac{nRT}{P_2} - \frac{nRT}{P_1} \right)$$

$$W = -1 \left(\frac{1 \times 2 \times 300}{1} - \frac{1 \times 2 \times 300}{5} \right)$$

$$= -480 \text{ Cal}$$

$$q = +480 \text{ Cal}$$

92. Ans (2)

$$\text{pH} = 9 \Rightarrow \text{pOH} = 5 \Rightarrow [\text{OH}^-] = 10^{-5}$$

$$[\text{Cd}^{+2}] [\text{OH}^-]^2 = 4 \times 10^{-15}$$

$$\Rightarrow [\text{Cd}^{+2}] \times 10^{-10} = 4 \times 10^{-15}$$

$$[\text{Cd}^{+2}] = 4 \times 10^{-5} \text{ mol/L}$$

93. Ans (1)

1 mol water = 18 gm water = 18 mL water

1 g-molecule of O_2 = 1 mole gas at STP = 22.4 L at STP

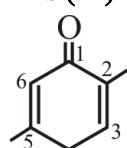
12.022×10^{23} molecules = 2 mole N_2H_4

$\Rightarrow 2 \times 4 = 8$ mole H-atom

0.16 g CH_4 = 0.01 mole CH_4

$\Rightarrow 0.01 \times 6 = 0.06$ mole neutron

96. Ans (4)

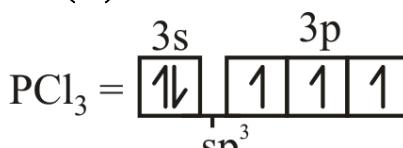


2,5-dimethyl cyclohexa-2,5-diene-1-one

98. Ans (1)

Fact

99. Ans (3)



Ground state configuration of p

SUBJECT : BOTANY

SECTION-A

101. **Ans (3)**

NCERT XIth Pg.#7

103. **Ans (3)**

NCERT XIth Pg.#30, 35, 36, 39

104. **Ans (1)**

NCERT XIIth Pg.#37

105. **Ans (4)**

NCERT XIIth Pg.#30

106. **Ans (3)**

NCERT XIth Pg.#82

107. **Ans (2)**

NCERT XIth Pg.#81

108. **Ans (4)**

NCERT XIth Pg.#75

110. **Ans (3)**

NCERT XIIth Pg.#6

126. **Ans (3)**

NCERT XIIth Pg # 104

127. **Ans (4)**

NCERT XIIth Pg # 97

128. **Ans (2)**

NCERT XIIth Pg #118

135. **Ans (4)**

NCERT XIIth Pg # 174

SECTION-B

136. **Ans (2)**

NCERT XIIth Pg # 171

137. **Ans (1)**

NCERT XIth Pg.#33

139. **Ans (3)**

NCERT XIIth Pg.#25, 26

148. **Ans (1)**

NCERT XIIth Pg.#101

SUBJECT : ZOOLOGY

SECTION-A

180. **Ans (2)**

NCERT XIIth Pg.#99

181. **Ans (4)**

NCERT XIIth Pg # 115

182. **Ans (3)**

NCERT XIIth Pg # 106

183. **Ans (1)**

NCERT XIIth Pg # 116, 117

185. **Ans (1)**

NCERT XIIth Pg # 183