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NEW LIGHT
INSTITUTE
Medical | Foundation

ALL INDIA

FULL SYLLABUS

TEST SERIES 2024-25

NATIONAL ELIGIBILITY-CUM-ENTRANCE TEST

S O L U T I O N

PHYSICS

SECTION-A

1. (4) **[NCERT - XI – I – 72]**

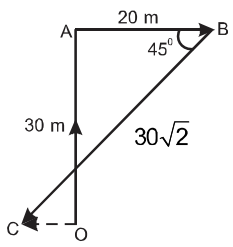
As the multiple of $\hat{j}$ in the given vector is zero therefore this vector lies in XZ plane and projection of this vector on y-axis is zero.

2. (2) **[NCERT - XI – I – 72]**

If a point has coordinate (x, y, z) then its position vector = $x\hat{i}+y\hat{j}+z\hat{k}$

3. (3) **[NCERT - XI – I – 28] NLI MODULE**

From figure, $\overrightarrow{OA}=0\hat{i}+30\hat{j}$, $\overrightarrow{AB}=20\hat{i}+0\hat{j}$



$\overrightarrow{BC}=-30\sqrt{2}\cos 45^0\hat{i}-30\sqrt{2}\sin 45^0\hat{j}$

$=-30\hat{i}-30\hat{j}$

$\therefore$ Net displacement,

$\overrightarrow{OC}=\overrightarrow{OA}+\overrightarrow{AB}+\overrightarrow{BC}=-10\hat{i}+0\hat{j}$

$|\overrightarrow{OC}|=10\,m$

4. (3) **[NCERT - XI – I – 41]PYQ MODIFIED**

As time periods are equal therefore ratio of angular speeds will be one. $\omega=\frac{2\pi}{T}$

5. (2) **[NCERT - XI – I – 74,75]**

Work done by centripetal force is always zero.

6. (2) **[NCERT - XI – I – 56,57]PYQ MODIFIED**

When a sudden jerk is given to C, an impulsive tension exceeding the breaking tension develops in C first, which breaks before this impulse can reach A as a wave through block.

7. (2) **[NCERT EXEMPLER MODIFIED]**

8. (4) **[NCERT - XI – I – 60,61]**

$$\mu=\frac{F}{R}=\frac{F}{mg}=\frac{98}{100\times 9.8}=\frac{1}{10}=0.1$$

9. (1) **[NCERT - XI – I – 61]**

10. (3) **[NCERT - XI – I – 75,76]**

According to work - energy theorem

W = change in kinetic energy

$$FS\cos\theta=\frac{1}{2}mv^2-\frac{1}{2}mu^2$$

Substituting the given values, we get

$20\times 4\times\cos\theta=40-0$

$$\cos\theta=\frac{40}{80}=\frac{1}{2}\qquad \theta=\cos^{-1}\left(\frac{1}{2}\right)=60^0$$

11. (3) **[NCERT - XI – I – 98,99]PYQ MODIFIED**

$$\vec{v}_{cm}=\frac{m_1\vec{v}_1+m_2\vec{v}_2}{m_1+m_2}=\frac{200\times 10\hat{i}+500\times(3\hat{i}+5\hat{j})}{200+500}$$

$$\vec{v}_{cm}=5\hat{i}+\frac{25}{7}\hat{j}$$

12. (3) **[NCERT - XI – I – 96]**

Centre of mass always lies towards heavier mass.

13. (2) **[NCERT - XI – I – 136,137]**

Due to inertial of direction

14. (3) **[NCERT - XI – I – 130]**

$$F=\frac{G\times m\times m}{(2R)^2}=\frac{G\times\left(\frac{4}{3}\pi R^3\rho\right)^2}{4R^2}=\frac{4}{9}\pi^2\rho^2R^4$$

$\therefore F\propto R^4$

15. (4) **[NCERT - XI – II – 170,171]**

$$I=\frac{FL}{Ay}=\frac{FV}{A^2y}\left[V=A\times L\therefore L=\frac{V}{A}\right]$$

$$F=\frac{A^2yl}{V}\qquad \therefore F\propto A^2$$

As cross sectional area of 2nd wire is 3 times therefore 9F force is required for same eleongation.

16. (3) **[NCERT - XI – II – 174,175]**

17. (2) **[NCERT - XI – II – 210,211]**

18. (1) **[NCERT - XI – II – 193]**

19. (2) **[NCERT - XI – II – 183] EX 9.2 MODIFIED**

Pressure at bottom of the lake = $P_0 + h\rho g$

Pressure at half the depth of a lake = $P_0 + \frac{h}{2}\rho g$

According to given condition

$$P_0 + \frac{1}{2}h\rho g = \frac{2}{3}(P_0 + h\rho g) \Rightarrow \frac{1}{3}P_0 = \frac{1}{6}h\rho g$$

$$\Rightarrow h = \frac{2P_0}{\rho g} = \frac{2\times10^5}{10^3\times10} = 20m$$

20. (4) **[NCERT - XI – II – 204]**

$T = 273.15 + t°C \Rightarrow 0 = 273.15 + t°C$

$\Rightarrow t = -273.15°C$

21. (2) **[PQY MODIFIED]**

According to ideal gas law

$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2} \text{ or } T_2 = T_1\frac{P_2V_2}{P_1V_1}$$

Here, $P_1 = P, V_1 = V, T_1 = T, P_2 = \frac{P}{2}, V_2 = \frac{V}{2}, T_2 = ?$

$$\therefore T_2 = \frac{T\left(\frac{P}{2}\right)\left(\frac{V}{2}\right)}{PV} \Rightarrow T_2 = \frac{T}{4}$$

22. (4) **[NCERT - XI – II – 249,250]**

$PV = nRT \Rightarrow PV = \frac{w}{M}RT \qquad \frac{PM}{RT} = \frac{w}{V} = d$

$$\Rightarrow d = \frac{PM}{RT} = \frac{P\times m\times N_A}{RT} = \frac{Pm}{\left(\frac{R}{N_A}\right)T} = \frac{Pm}{kT}$$

23. (4) **[NCERT - XI – II – 234,235]**

Change in internal energy does not depend upon pathe so $\Delta U = \Delta Q - \Delta W$ remains constant.

24. (4) **[NCERT EXEMPLER MODIFIED]**

$$\frac{Q}{t} = \frac{KA\Delta\theta}{l} \Rightarrow \frac{Q}{t} \propto \frac{A}{l} \propto \frac{d^2}{l} \text{ [d= Diameter of rod]}$$

$$\Rightarrow \frac{(Q/t)_1}{(Q/t)_2} = \left(\frac{d_1}{d_2}\right)^2 \times \frac{l_2}{l_1} = \left(\frac{1}{2}\right)^2 \times \left(\frac{1}{2}\right) = \frac{1}{8}.$$

25. (3) **[NCERT - XI – II – 266]**

$$v_{max} = \omega A \Rightarrow v = \frac{\omega A}{2} = \omega\sqrt{A^2 - y^2}$$

$$\Rightarrow A^2 - y^2 = \frac{A^2}{4} \Rightarrow y^2 = \frac{3A^2}{4} \Rightarrow y = \frac{\sqrt{3}A}{2}$$

26. (4) **[NCERT - XI – II – 286]**

$$332 \text{ m/s} = 332\times\frac{18}{5} \text{ km/h}$$

= 1195.2 km/h

27. (4) **[NCERT - XI – II – 283]**

$$v = n\lambda \Rightarrow \lambda = \frac{v}{n} = \frac{330}{256} = 1.29m$$

28. (2) **[NCERT - XII – I – 8]**

Here, $q_1 = 3\mu C = 3 \times 10^{-6}C$, $q_2 = 3\mu C = 3 \times 10^{-6}C$

$r_1 = \hat{i} + \hat{j} + \hat{k}, r_2 = 2\hat{i} + 3\hat{j} + 3\hat{k}$

$\therefore \vec{r} = \vec{r}_2 - \vec{r}_1$

$= (2\hat{i} + 3\hat{j} + 3\hat{k}) - (\hat{i} + \hat{j} + \hat{k}) = \hat{i} + 2\hat{j} + 2\hat{k}$

$|\vec{r}| = \sqrt{(1)^2 + (2)^2 + (2)^2} = 3$

Accroding to coulomb's law, $F = \frac{1}{4\pi\varepsilon_0}\frac{q_1q_2}{r^2}$

$$= \frac{9\times10^9\times3\times10^{-6}\times3\times10^{-6}}{(3)^2} = 9\times10^{-3}N$$

29. (3) **[NCERT - XII – I – 88]**

$$v_d = \frac{J}{ne} \Rightarrow v_d \propto J$$

$J_1 = \frac{i}{A}$ and $J_2 = \frac{2i}{2A} = \frac{i}{A} = J_1 \quad \therefore (v_d)_1 = (v_d)_2 = v$

30. (1) **[NCERT - XII – I – 82]**

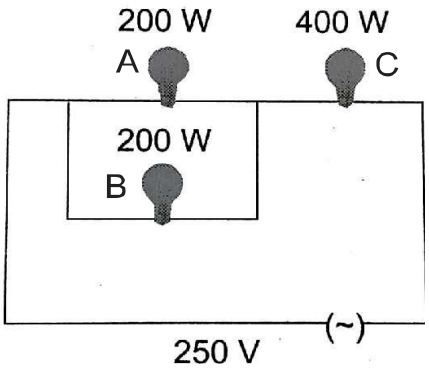
$$I = \frac{dq}{dt} = 3t^2 + 2t + 5$$

$\therefore dq = (3t^2 + 2t + 5)dt \qquad \therefore q = \int_{t=0}^{t=2}(3t^2 + 2t + 5)dt$

$= \frac{3t^3}{3} + \frac{2t^2}{2} + 5t \qquad = \frac{3t^3}{3} + \frac{2t^2}{2} + \Big|_0^2 = t^3 + t^2 + 5t\Big|_0^2 = 22$ C

31. (3) **[NCERT - XII – I – 92,93]**

Bulbs A and B are in parallel, their effective power is $P' = P_A + P_B = 200W + 200W = 400W$



P' and bulb C are in series, the resultant power of the combination is

$$P_R = \frac{P' \times P_C}{P' + P_C} = \frac{400W \times 400W}{400W + 400W} = 200W$$

32. (2) **[NCERT - XII – I – 109,110]**

Because for inside the pipe i = 0

$$\therefore B = \frac{\mu_0 i}{2\pi r} = 0$$

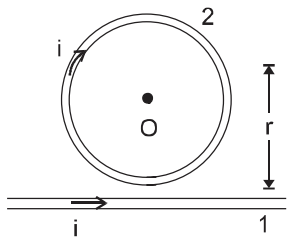
33. (4) **[NCERT - XII – I – 112,113]**

$$dB = \frac{\mu_0}{4\pi} \cdot \frac{idl\sin\theta}{r^2} \Rightarrow d\vec{B} = \frac{\mu_0}{4\pi} \cdot \frac{i(d\vec{l} \times \vec{r})}{r^3}$$

34. (2) **[NCERT - XII – I – 116,117] PYQ MODIFIED**

The given shape is equivalent to the following diagram The field at O due to straight part of conductor is $B_1 = \frac{\mu_0}{4\pi} \cdot \frac{2i}{r} \odot$. The field at O due to circular coil is $B_2 = \frac{\mu_0}{4\pi} \cdot \frac{2\pi i}{r} \otimes$. Both fields will act in the opposit direction, hence the total field at O.

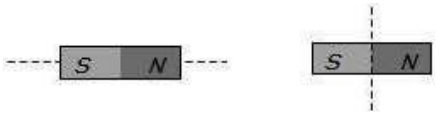
i.e. $B = B_2 - B_1 = \left(\frac{\mu_0}{4\pi}\right) \times (\pi - 1)\frac{2i}{r} = \frac{\mu_0}{4\pi} \cdot \frac{2i}{r}(\pi - 1)$



35. (2) **[NCERT - XII – I – 138,139]**

If cut along the axis of magnet of length l, then new pole strength $m' = \frac{m}{2}$ and new length l' = l

$\therefore$ New magnetic moment $M' = \frac{m}{2} \times l = \frac{ml}{2} = \frac{M}{2}$



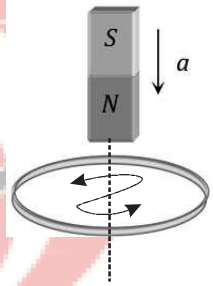
If cut perpendicular to the axis of magnet, then new pole strength m' = m and new length, l' = l/2

$\therefore$ New magnetic moment $M' = m \times \frac{l}{2} = \frac{ml}{2} = \frac{M}{2}$

SECTION-B

36. (3) **[NEET PYQ As it]**

As it is seen from the magnet side, induced current will be anticlockwise.



37. (3) **[NCERT - XII – I – 190,191]**

$$P = V_{r.m.s.} \times i_{r.m.s.} \times \cos\phi = \frac{100}{\sqrt{2}} \times \frac{100 \times 10^{-3}}{\sqrt{2}} \times \cos\frac{\pi}{3}$$

$$= \frac{10^4 \times 10^{-3}}{2} \times \frac{1}{2} = \frac{10}{4} = 2.5\,\text{watt}$$

38. (3) **[NCERT - XII – II – 299]**

Time period of revolution of electron in n^{th} orbit is

$$T_n = \frac{2\pi r_n}{v_n} = \frac{2\pi\left(\frac{\varepsilon_0 n^2 h^2}{\pi m e^2}\right)}{\frac{e^2}{2\varepsilon_0 nh}} = \frac{4\varepsilon_0^2 n^3 h^3}{me^4}$$

The current due to circulating electron in n^{th} is

$$I_n = \frac{e}{T_n} = \frac{e}{\frac{4\varepsilon_0^2 n^3 h^3}{me^4}} = \frac{me^5}{4\varepsilon_0^2 n^3 h^3} \Rightarrow I_n \propto e^5$$

39. (1) **[NCERT - XII – II – 299,300]**

$n = 2$ ——— $E_2 = -\frac{13.6}{(2)^2} = -3.4\,eV$

$n = 1$ ——— $E_1 = -13.6\ eV$

$E_{1\to 2} = -3.4 - (-13.6) = +10.2\,eV$

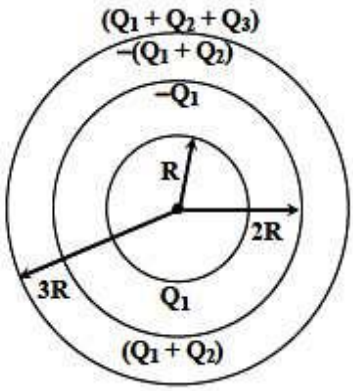
40. (4) **[NCERT - XII – II – 260,230] PYQ MODIFIED**

$\delta = (360 - 2\theta) = (360 - 2\times 60) = 240°$

41. (4) **[NCERT - XII – II – 262,263,264,265]**

42. (2) **[NEET PYQ MODIFIED]**

Due to induction net charges on outer surfaces of spheres are as shown.



$\sigma = \frac{Q_1}{4\pi R^2} = \frac{Q_1+Q_2}{4\pi(2R)^2} = \frac{Q_1+Q_2+Q_3}{4\pi(3R)^2}$

$\Rightarrow Q_1 = \frac{Q_1+Q_2}{4} = \frac{Q_1+Q_2+Q_3}{9}$

$\Rightarrow Q_2 = 3Q_1 \quad Q_3 = 5Q_1$

$\therefore Q_1 : Q_2 : Q_3 = 1:3:5$

43. (1) **[NCERT - XI – II – 258,286]**

$v_{max} = a\omega = a\times 2\pi n = 0.1\times 2\pi\times 300 = 60\pi\,cm/sec$

44. (3) **[NCERT - XI – I – 130,131]**

Gravitaional field due to a spherical shell

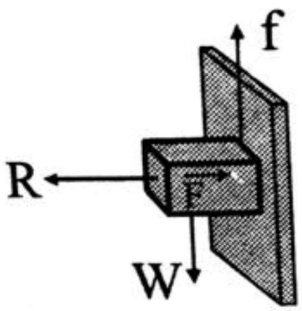
at a point inside the shell i.e., r < R

$E_{inside} = 0$

$\therefore$ The gravitational force acting on a point mass m at a distance R / 2 is

$F = mE_{inside} = 0$

45. (3) **[NCERT - XI – I – 58,59]**



Here applied horizontal force F acts as normal reaction.

For holding the block

$f = W \Rightarrow \mu R = W$

$\Rightarrow \mu F = W$

$\Rightarrow F = \frac{W}{\mu}$

As $\mu < 1 \therefore F > W$

46. (4) **[NCERT - XII – I – 92,93]**

Watt = Joule/second = Ampere x volt = Ampere^2 x Ohm

47. (4) **[NCERT - XII – I – 6,7]**

48. (1) **[NCERT - XII – I – 6,7]**

Torque about Q of charge –q is zero, so angular momentum charge –q is constant, but distance between charges is changing, so force is changing, so speed and velocity are changing.

49. (2) **[NCERT - XII – II – 85]**

50. (2) **[NCERT - XII – II – 162,163]**

Because there is no change in flux linked with coil

CHEMISTRY

SECTION-A

51. (2) **[NCERT-XI-15]**

Given data illustrate the Gay-Lussac's law.

52. (4) **[NCERT-XI-23]**

$\therefore$ Number of moles of glucose $= \frac{0.9}{180} =$

5×10^{-3} mol

53. (3) **[NCERT-XI-61]**

For multi electron atom energy depends on 'n' and 'l'

54. (3) **[NCERT-XI-59]**

55. (3) **[NCERT-XI-84]**

Chalcogen are group –16 elements i.e. oxygen family. Electronic configuration in their outermost orbit is s^2p^4.

56. (2) **[NCERT-XI-80]**

Unniltrium $\rightarrow$ Lawrencium.

57. (3) **[NCERT-XI-112]**

Cd^{2+} ion has Psuedo noble has configuration cation with psuedo noble gas configuration have more polariing power than cation with noble gas configuration.

58. (2) **[NCERT-XI-117]**

The molecule ClF_3 has T shape as it has 3 bonding pairs and 2 lone pairs.

59. (2) **[NCERT-XI-129]**

Bond order α Bond energy

60. (3) **[NCERT-XI-142]**

$$W = -2.303\ nRT \log \frac{P_1}{P_2}$$

$$= -2.303 \times 1 \times 2 \times 300 \log \frac{10}{1}$$

$$= -1381.8 \text{ cal.}$$

61. (1) **[NCERT-XI-160]**

$\therefore \Delta G = \Delta H - T\Delta S$ and $\Delta G = 0$

$\Rightarrow \Delta H = T\Delta S$

$\Rightarrow T = \frac{\Delta H}{\Delta S} = 481K$

62. (4) **[NCERT-XI-176]**

$$Kc^1 = \left(\frac{1}{kc}\right)^{1/2}$$

$$= \left(\frac{1}{81}\right)^{1/2}$$

$$= \frac{1}{9}$$

63. (4) **[NCERT-XI-185]**

Le - chatelier's principle.

64. (1) **[NCERT-XI-204]**

Precipitation of AgCl will occur only when ionic product is greater than solubility product.

65. (4) **[NCERT-XI-203]**

$$PH = Pka + \log \frac{(Salt)}{(Acid)}$$

$$= 4.57 + \log \frac{0.1}{0.01}$$

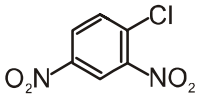
$$= 4.57 + 1$$

$$= 5.57$$

66. (4) **[NCERT-XI-244]**

ClO_4^- does not disproportionate because in this oxoanion chlorine i present in its highest oxidation state +7.

67. (2) **[NCERT-XI-269]**



1– chloro –2,4 dinitro benzene

68. (4) **[NCERT-XI-284]**

Both mobile phase and stationary phase are liquid.

69. (4) **[NCERT-XI-273]**

Electrophile can be either neutral or positively charged species and can form a bond by accepting a pair of electron from a nucleophile

70. **(2)** **[NCERT-XI-290]**

71. **(3)** **[NCERT-XII-209]**

$(C_2H_5)_2C = C(CH_3)$ with C_2H_5 below the C

72. **(3)** **[NCERT-XI-315]**

toluene

73. **(3)** **[NCERT-XII-7]**

$He < H_2 < O_2$

74. **(3)** **[NCERT-XII-17]**

75. **(3)** **[NCERT-XII-57]**

In H_2–O_2 fuel cell, the reaction occurring at cathode is

$O_2(g) + 2H_2O(l) + 4e^- \rightarrow 4OH^-(aq)$

76. **(1)** **[NCERT-XII-52]**

1 F, 2 F, 3 F, 6 F

77. **(3)** **[NCERT-XII-63]**

Given reaction

$A(g) + 4B(g) \rightarrow 5C(g)$

$$\frac{-d[A]}{dt} = -\frac{1}{4}\frac{-d[B]}{dt}$$

$$\frac{-d[A]}{dt} = -\frac{1}{4} \times 2 \times 10^{-3}$$

$= 0.5 \times 10^{-3}$

$= 0.5 \times 10^{-4}$ mol L^{-1} min^{-1}

78. **(4)** **[NCERT-XII-74]**

A-iii, B-i, c-iv, D-ii

Column I		Column II
ln = [F] vs t (1st Order)	–	–k
ln k vs 1/T	–	$-E_a / R$
log $[R_o]$ / [R] vs t	–	k/2.030
(1st Order)		
$t_{1/2}$ vs $[A]_o$ (Zero Order)	–	1/2 k

79. **(3)** **[NCERT-XII-104]**

Interstitial compound are less malleable and ductile

80. **(1)** **[NCERT-XII-112]**

81. **(2)** **[NCERT-XII-126]**

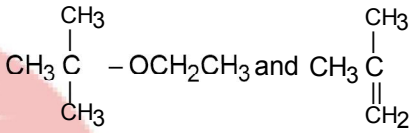
A-ii, B-i, C-iv, D-iii

(Complex)		(Type of isomerisation)
• $[Co(Br)(NH_3)_5]SO_4$	–	Ionisation isomerism
• $[Fe(NO_2)_2(NH_3)_4]$	–	Linkage isomerism
• $[CoCl(en)_2(H_2O)]Cl_2$	–	Hydrate isomerism
• $[Pt(NH_3)_4][PtCl_4]$	–	Coordination isomerism

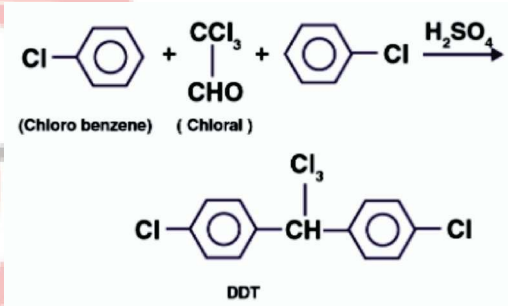
82. **(4)** **[NCERT-XII-128]**

$[Fe(H_2O)_6]^{3+}$ has five unpaired electrons

83. **(3)** **[NCERT-XII-216]**



84. **(4)** **[NCERT-XII-188]**



85. **(4)** **[NCERT-XII-202]**

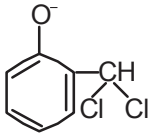
86. **(4)** **[NCERT-XII-216]**

Statements I : t-butyl methyl ether is not prepared by the reaction of t-butyl bormide with sodium ethoxide.

Statement II : Sodium methoxide is a strong nucleophile.

(4) Both Statement I and Statement II are true.

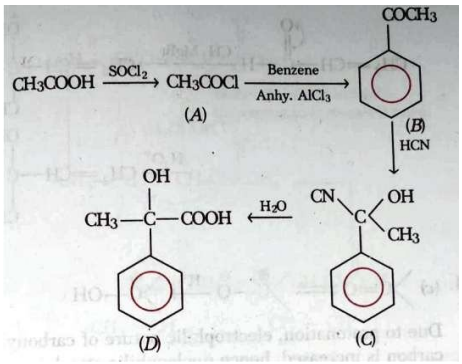
87. **(4)** **[NCERT-XII-213]**



88. **(3)** **[NCERT-XII-241]**

Statement I is false but Statement II is true

89. (1) **[NCERT-XII-252]**



90. (1) **[NCERT-XII-254]**

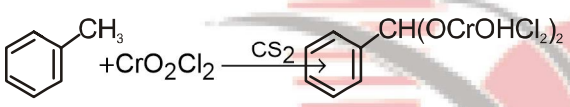
Aromatic carboxylic acids undergo electrophilic substitution reaction at m-positon due to the presence of electron withdrawing group.

Due to delocalisation of π-electrons, electron density is decreased at o- and p-positions.

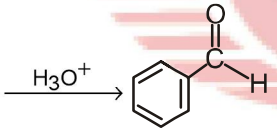
91. (3) **[NCERT-XII-253]**

(3) A-3, B-4, C-2, D-1

92. (2) **[NCERT-XII-233]**



Toluene (X) Chromium complex



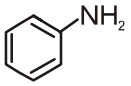
Benzaldehyde

This is called Etard reaction.

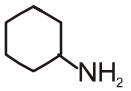
93. (1) **[NCERT-XII-210]**

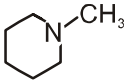
Butan-2-ol

94. (1) **[NCERT-XII-266]**

I. 

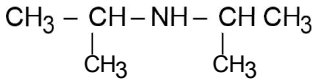
II. 

IV. 

III. 

(1) I < II < IV < III

95. (1) **[NCERT-XII-271]**



96. (4) **[NCERT-XII-292]**

Albumin — Globular protein

97. (4) **[NCERT-XII-129]**

0.0 and 5.92 BM

98. (2) **[NCERT-XII-266]**

I < II < III

$C_6H_5NH_2(I) < (C_2H_5)_2NH(II) < C_2H_5NH_2(III)$

99. (2) **[NCERT-XII-78]**

Statement I is true but Statement II is false

100. (4) **[NCERT-XII-240]**

$\underline{S}O_2$ and $\underline{S}O_3$

BIOLOGY

PART-1 (SECTION-A)

101. (4) **[NCERT–II–145 to 147]**

The followings measures are useful for prevention and control of alchohol and drugs abuse among adolescents–

(1) Seeking professional and medical help

(2) Looking for Danger signs

(3) Seeking help from parents and peers

102. (2) **[NCERT–II–5 to 11]**

If a flowering plants have 30 chromosome then select the correct option:

(a) Generative cell + Antipodal cell + PMC = 60 chromosome

(b) Egg cell + Pollen grain + MMC = 60 chromosome

(c) Synergids + Pollen grain + MMC = 60 chromosome

(d) Egg cell + Vegetative cell + Zygote = 60 chromosome

103. (3) **[NCERT-II-172,173]**

Amplification of gene of interest is done using Polymerase chain reaction

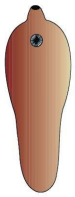
104. (1) **[NCERT–I–43,44]**

(A) Bombyx	I	Silkworm
(B) Culex	II	Mosquitoes
(C) Limulus	III	King crab
(D) Hirudinaria	IV	Blood sucking leech

105. (3) **[NCERT–I–42 to 49]**

(A)  - Triploblastic - chordate

(B)  - Coelomate - chordates

(C)  - Triploblastic - parasite

(D)  - Internal fertilization - Development is direct

106. (4) **[NCERT–I–48 to 51]**

The correct match –

(A) Forelimbs modified into wings - Aves

(B) Three and four chambered heart – Reptilia

(C) Muscular Diaphragm – Mammalia

(D) Closed and open circulatory system – Mollusca

107. (3) **[NCERT–I–40 to 51]**

(1) Cellular level - Euspongia

(2) Tissue level - Pleurobrachia

(3) Organ system level - Not all false fishes

(4) Mammary gland - Horse

108. (2) **[NCERT–I–24 to 33]**

(1) Capsule - Sporophyte

(2) Gemmae - Asexual reproduction

(3) Laminaria and Sargassum - Used as food

(4) Cedrus - Naked seeds

109. (4) **[NCERT-I-24 to 33]**

(1) Selaginella – Sporophyte stage dominant

(2) Spirogyra – Gametophyte stage dominant

(3) Cycas – Unisexual

(4) Equisetum – Sporophyte stage dominant

110. (4) **[NCERT-I-178]**

The type of role PGR play in plants

(1) Antagonistics

(2) Synergistic

(3) Individualistic

111. (4) **[NCERT-I-101, 102]**

Statement I:

Many membranes bound minute vesicles called microbodies that contain various enzymes, are present in both plant and animal cells.

Statement II :

Centromere holds two chromatids of a chromosome.

112. (2) **[NC-I-113]**

Statement I:

A general rule of thumb is that rate doubles or decreases by half for every 10°C change in either direction.

Statement II :

Catalysed reactions proceed at rates vastly higher than that of uncatalysed ones.

113. (3) **[NCERT-II-169]**

(1) DNase I – A type of endonuclease but not restriction endonuclease

(2) RNase – RNA digesting enzyme

(3) Pvu I – Restriction endonuclease

(4) Lysozyme –Bacterial cell wall digesting enzyme

114. (1) **[NCERT–II–168]**

(1) A - wells

(2) B - Largest

(3) C - Smallest

115. (4) **[NCERT-I-210, 211]**

The flow of filtrate in the two limbs of Henle's loop is in opposite directions and thus forms a counter current

116. (2) **[NCERT-II-12]**

(1) Viola	–	Cleistogamous flower
(2) Commelina	–	Produce Chasmogamous and cleistogamous flower
(3) Oxalis	–	Chasmogamous flower
(4) Geitonogamy	–	Genetically autogamy

117. (1) **[NCERT–I–12 to 21]**

(A) Anabaena - Monera - Autotrophic

(B) Gonyaulax - Eukaryotes - Two flagella

(C) Rhizopus - Eukaryotes - Heterotrophic

(D) Viroids - Infectious agent - Acellular organism

118. (1) **[NCERT–II–47]**

STIs – Syphilis, Chlamydiasis and Gonorrhea

119. (3) **[NCERT–I–241 to 245]**

(1) MSH - Pituitary gland

(2) ACTH - Pituitary gland

(3) Glucagon - Pancreas

(4) Melatonin - Pineal gland

120. (3) **[NCERT–I–246,247]**

The correct statement for ovary –

(1) Ovary is composed of ovarian follicles and stromal tissue.

(2) Ovary is the primary female sex organ.

(3) Ovary produces two hormones estrogen and progestogens.

(4) In human female a pair of ovaries located in the abdomen.

121. (4) **[NCERT–I–6 to 8]**

Order		**Class**
(A) Primata	-	Mammalia
(B) Carnivora	-	Mammalia
(C) Sapindales	-	Dicotyledonae
(D) Diptera	-	Insecta

122. (3) **[NCERT-II-225]**

In a follow - up, the world summit on sustainable development held in 2002 in Johannesburg, South Africa, 190 countries pledged their commitment to achieve by 2010, a significant reduction in the current rate of biodiversity loss at global, regional and local levels

123. (4) **[NCERT-II-207, 208]**

(1) Earthworm	–	Farmer's freind
(2) Earthworm	–	Detritivores
(3) Bacteria	–	Catabolism
(4) Humus	–	Highly resistance to microbial action and undergoes decomposition at an extremely slow rate

124. (4) **[NCERT-II-193]**

Natality–The number of births during a given period in the population that are added to the initial density

125. (1) **[NCERT–II–152,153]**

(a) *Aspergillus niger* – multicellular organism

(b) *Saccharomyces cerevisiae* – unicellular organism

(c) *Trichoderma polysporum* – multicellular organism

(d) *Monascus purpureus* – unicellular organism

126. (3) **[OLD NCERT–I]**

(A) Fleshy leaves - Garlic - Food storage

(B) Spines - Cacti - Defence

(C) Petioles - Australian acacia - Becomes Green and synthesise food

(D) Underground - Zaminkand - Food storage

127. (1) **[OLD NCERT–I]**

Select the correct option for cockroach:

a. Unisexual

b. Number of ovary and testis are same

c. Uricotelic

d. One labrum

e. Number of malpighian tubule are greater than `hepatic caeca

128. (3) **[NCERT–I–194]**

The minerals are present In plasma

a. Na^{+}

b. Ca^{+2}

c. Mg^{+2}

d. Cl^{-}

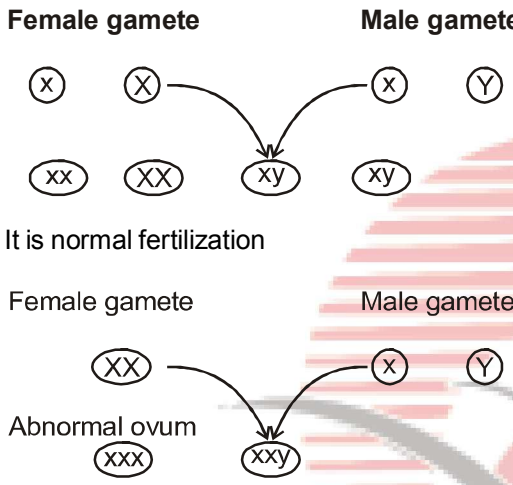
129. (1) **[NCERT-II-88]**

The first genetic material is RNA

130. (3) **[NCERT-II-105]**

99.9% DNA base sequence among human beings is same.

131. (4) **[NCERT-II-75, 76]**



It is normal fertilization

132. (1) **[NCERT–II–55]**

The Dominant Trait –

(a) Round

(b) Violet

(c) Axial

133. (4) **[NC-II-178, 179]**

(1) Explants – Tissue culture

(2) Micro-propagation – Tissue culture

(3) Somaclones – Genetically identical

(4) GMO – Bacteria, Fungi, Plant and animal

134. (4) **[NCERT–II–207,208]**

The following are favours decomposition:

(1) High temperature

(2) Moist environment

(3) Aerobic environment

135. (4) **[NCERT–I–106,107]**

The carboxyl groups are present –

a. Alanine

c. Arachidonic acid

d. Aspartic acid

PART-1 (SECTION-B)

136. (2) **[NC-I-189]**

Binding of oxygen with haemoglobin is primarily related to partial pressure of O_2.

Statement II :

A sigmoid curve is obtained when percentage saturation of haemoglobin with O_2 is plotted against the pO_2.

137. (2) **[NCERT–II–14]**

The meaning of 'Arboreal' – Tree dwelling

138. (4) **[NCERT–I–18 to 21]**

The disease causing agent–

(a) TMV

(b) Viroids

(c) Mycoplasma

(d) Puccinia

139. (4) **[NC-II-216]**

(1) Ants – More than 20,000

(2) Fishes – 28,000

(3) Orchids – 20,000

(4) Beetles – 3,00,000

140. (1) **[NC-I-138]**

In Photosystem II the reaction centre Chlorophyll a absorbs 680 nm wave length of red light causing electrons to become excited and jump into an orbit farther from the atomic nucleus

141. (4) **[NCERT-II-168]**

All are involved in gell electrophoresis

142. (1) **[NCERT–II–94]**

In prokaryotes Transcription and Translation takes place in the same compartment:

(a) Streptococcus

(c) E. coli

(d) Pneumococcus

143. (4) **[NCERT-II-34, 35]**

Statement I:

The menstrual flow results due to breakdown of endometrial lining of the uterus and its blood vessels which form liquid that comes out through vagina.

Statement II :

During pregnancy all events of the menstrual cycle stop and there is no menstruation.

144. (4) **[NCERT–I–88]**

Both (A) and (R) are true and (R) is the correct explanation of (A)

145. (2) **[NCERT–II–133]**

The given diagram is represent elephantiasis

146. (4) **[NCERT–II–32]**

The human male ejaculates about 200 to 300 Millions sperms

147. (2) **[NCERT–I–62 to 64, [6,7]**

The correct option for Brinjal :

(a) Genus *Solanum*

(b) Species *melongena*

(c) Superior ovary

(d) Hypogynous

(e) Epipetalous

148. (1) **[NC-I-83]**

The mid brain of Frog includes a pair of opticlobes

149. (2) **[NC-I-187]**

The 95mm Hg pO_2 are at Oxygenated blood

150. (3) **[NC-I-144, 156]**

3–Phosphoglycerate compound are formed in both glycolysis and calvin cycle

PART-2 (SECTION-A)

151. (1) **[NCERT-I-60 to 63]**

A.	Hypogynous	II.	Superior ovary
B.	Epigynous	I.	Inferior ovary
C.	Perigynous	III.	Half inferior ovary
D.	Pinnately compound leaf	IV.	Rachis

152. (4) **[NCERT–II–146]**

AIDS and Hepatitis Bdisease are chronic infections and ultimately fatal

153. (1) **[NCERT–II–67]**

Linkage – Physical association of genes

154. (1) **[NCERT–II–121,122]**

Jawless fish probably evolved around 350 mya.

the meaning of 'mya' – Millions year ago

155. (3) **[NCERT–II–113]**

The Alfred wallace, a naturalist worked at Malay Archipelago

156. (4) **[NCERT-I-54, 55]**

In plants there are several reasons why plants can get along without respiratory organs. These reasons are

(1) Root, stems and leaves respire at rates far lower than animals do

(2) When cells photosynthesise, availability of O_2 is not a problem in these cells since O_2 is released within the cell

(3) The distance that gases must diffuse even in large, bulky plants is not great. Each living cell in a plant is located quite close to the surface of the plant

157. (1) **[NCERT–II–44]**

Periodic abstinence is one such method in which the couple avoid or abstain from coitus from day 10 to 17 of the menstrual cycle when ovulation could be expected.

158. (2) **[NCERT-II-189]**

Ramdeo mishra Formulated the first postgraduated course in ecology in India

159. (1) **[NCERT-I-226]**

Below the Acromion is a depression called the Glenoid cavity which Articulates with the head of the Humerus to form the shoulder joint

160. (2) **[NC-I-126]**

Terminalization, recombinase, crossing over, these are related with Meiosis I

161. (4) **[NC-II-75]**

Statement I:

In α thalassemia, production of α globin chain is affected while in β thalassemia, production of β globin chain is affected.

Statement II :

The chromosomal disorders caused due to absence or excess or abnormal arrangement of one or more chromosomes.

162. (4) **[OLD NCERT–I]**

(1)  – Tip of Nose

(2)  – Hard and non pliable ground substance

(3)  – Intercellular material is solid and pliable and resist compressions

(4)  – Fiber present

163. (4) **[NC-I-96]**

Statement I:

Vacuole containes water, sap, excretory product and other materials not useful for the cell.

Statement II :

In plants, the tonoplast facilitates the transport of a number of ions and other materials against concentration gradients into the vacuole.

164. (3) **[NC-II-31]**

A primary spermatocyte completes the first meiotic division (reduction division) leading to formation of two equal, haploid cells called secondary spermatocytes, which have only 23 chromosomes each. The secondary spermatocytes undergo the second meiotic division to produce four equal, haploid spermatids

165. (3) **[NCERT–II–80 to 82]**

23 Hydrogen bonds are present in the given sample of DNA:

5' ATCCGTACC 3'

3' TAGGCATGG 5'

166. (2) **[NCERT-II-73 to 76]**

In mendelian disorder number of chromosome are not change but gene are changes.

167. (2) **[NCERT-II-192,193]**

Statement I:

Sometimes for certain ecological Investigations, there is no need to know the absolute population densities, relative densities serve the purpose equally well.

Statement II :

Under normal conditions, birth and death may contribute more significantly to populations growth than birth rates.

168. (4) **[NMC Syllabus]**

The type of pages are present in Red Data book–

(1) Red page

(2) Pink page

(3) Green page

169. (4) **[NCERT-II-87]**

(1) DNA chemically is less reactive and structurally more stable when compared to RNA

(2) The DNA is a better genetic material

(3) Both DNA and RNA are able to mutate.

(4) RNA mutate at a faster rate than DNA

170. (4) **[NCERT–II–86]**

The correct option for Hershey – chase experiment:

(a) Blending

(b) Centrifugation

(c) Use of radioactive element

(d) Use of virus

(e) Use of Bacteria

171. (4) **[NC-I-126 to 128]**

(1) Formation of synaptonemal complex – Meiosis I

(2) Separation of homologous chromosomes – Meiosis I

(3) Recombinase enzyme– Meiosis I

172. (2) **[NC-I-123, 124]**

Statement I:

At the time of cytoplasmic division, organelles like mitochondria and plastids get distributed between the two daughter cells.

Statement II :

Anaphase centromere split and chromatids separate.

173. (4) **[NCERT–I–201]**

(1) Tunica intima	-	Squamous endothelium
(2) Tunica media	-	Smooth muscle and elastic fiber
(3) Tunica externa	-	Fibrous connective tissue
(4) Tunica media	-	Present in Artery

174. (3) **[NCERT–I–117,118]**

The cofactor:

(a) Zn^{+2}

(b) NAD

(c) NADP

(d) FAD

(e) Haem group

175. (3) **[NC-I-236]**

(1) Pleasure and rage	–	Limbic lobe and Hypothalamus
(2) Motivation	–	Limbic lobe and Hypothalamus
(3) Cranial Nerves	–	Sensory, motor and mixed
(4) Cerebrum	–	Major part of the human brain

176. (2) **[NMC SYLLABUS]**

The correct option for C A :

- A Type of Adhesion
- Attachement of two different floral Appandages
- Epipetalous

177. (3) **[NMC SYLLABUS]**

The causative agent of dengue fever is Flavi-Ribo virus

178. (4) **[NCERT-II-178]**

Apical and Axillary both meristem are free of virus

179. (2) **[NCERT–II–224,225]**

The In-situ conservation–

(a) National park

(b) Biosphere reserve

(c) Sacred grove

180. (4) **[NMC SYLLABUS]**

The example of polyploidy :

- Pentaploidy
- Tetraploidy
- Hexaploidy

181. (4) **[NMC SYLLABUS]**

The gene recombination occurs due to :

- Independent assortment of chromosome
- Crossing over during meiosis
- Formation of new alleles

182. (4) **[NMC SYLLABUS]**

Cabbage, and Shalgam are belong to

- Family Brassicaceae
- Order parietales
- Class dicotyledonae

183. (4) **[Old-NC-I]**

(1) Compound epithelium – Provide protection against chemical and mechanical stress

(2) Glandular epithelium – Secretion

(3) Areolar tissue – Fibroblast

(4) Adipose tissue – A type of connecting tissue

184. (4) **[Old-NC-I]**

(1) Flattened cell – Simple squamous epithelium

(2) Cube - like cell – Simple cuboidal epithelium

(3) Tall cell – Simple columnar epithelium

185. (1) **[NC-I-108 to 118]**

A.	Formation of H_2CO_3	II.	Carbonic anhydrase
B.	Break down of hydrogen peroxide to water and oxygen	I.	Haem
C.	Anthocyanins	IV.	Pigment
D.	Lipids	III.	Not strictly macromolecules

PART-2 (SECTION-B)

186. (4) **[NC-I-167]**

(1) Plant growth – Generally is indeterminate

(2) Plant growth – Irreversible permanent increase in size

(3) Plant growth – Open form of growth

187. (2) **[NC-I-126]**

X Shaped–chiasmata

188. (3) **[NC-I-231, 232]**

JG cells –Kidney

189. (2) **[Old-NCERT-I]**

Select the correct statement for tracheid

(1) Help in water transport

(2) Present in pteridophytes, gymnosperm and angiosperm

(3) It is non living

(4) It is compoment of xylem

190. (1) **[Old-NCERT-I]**

Sclerenchyma occurs in Leaves of tea

191. (3) **[Old-NCERT-I]**

Shoot apical meristem, Root apical meristem, Intercalary meristem – Living

Phleom fiber – Non living

192. (4) **[NCERT-I-135, 150, 155]**

Select the correct statement for CO_2

(1) It is major limiting factor for photosynthesis

(2) It is reactant in photosynthesis

(3) It is product of aerobic respiration

193. (2) **[NCERT-I-145 to 150]**

Select the correct statement for C_4 plants

(1) It is respond to higher temperatures and show higher rate of photosynthesis

(2) Primary CO_2 acceptor is 3 carbon molecule

(3) RuBisCO and PEPcase both are involved in CO_2 fixation

194. (4) **[NCERT-I-213]**

The correct statement for excretory organ in human

(1) Lungs, liver and skin also helps in the elimination of excretory wastes

(2) The sweat and sebaceous glands in the skin can eliminate certain substances through their secretions

(3) Our lungs remove large amounts of CO_2

195. (3) **[NCERT-I-239 to 247]**

The correct statements for hormones

a. It is non nutrient chemicals

b. Hormones are steroidal, proteinaceous and amino acid derivative.

c. Hyposecretion and hypersecretion of hormones results in diseases

d. Testis and ovary are endocrine gland and sex organ also.

196. (2) **[NCERT-I-224, 225]**

The correct statement for skeletal system of human

(1) It is grouped into two principle divisions - the axial and the appendicular skeleton

(2) The skull is composed of two sets of bones

(3) Axial skeleton comprises 80 bones distributed along the main axis of the body

(4) In skull two occipital condyles present

197. (3) **[NCERT-II-70, 71]**

Hens – Female Bird – ZW

Chicken – Male Bird – ZZ

198. (3) **[NCERT-II-171]**

Fungal cell wall digestion – Chitinase

199. (2) **[NCERT-II-179]**

Some strains of Bacillus thuringiensis produce proteins that kill certain insects. These insects are

a. Armyworm

b. Tobacco budworm

e. Mosquitoes

200. (1) **[NCERT-I-175]**

Removal of shoot tips is decapitations

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