meritroot
STRONG ROOTS CREATE MERIT

NEET MOCK TEST-02

Time : 3.00Hrs **200 MCQs PATTERN** **Max.Marks.720**

Answers and Solutions

PHYSICS

1) **3**	2) **1**	3) **3**	4) **2**	5) **4**	6) **2**	7) **3**	8) **1**	9) **3**	10) **4**
11) **2**	12) **4**	13) **3**	14) **1**	15) **1**	16) **4**	17) **1**	18) **3**	19) **2**	20) **1**
21) **2**	22) **1**	23) **4**	24) **1**	25) **3**	26) **1**	27) **1**	28) **1**	29) **2**	30) **1**
31) **2**	32) **1**	33) **4**	34) **2**	35) **2**	36) **3**	37) **1**	38) **1**	39) **2**	40) **2**
41) **1**	42) **4**	43) **4**	44) **3**	45) **2**	46) **4**	47) **4**	48) **2**	49) **4**	50) **2**

CHEMISTRY

51) **3**	52) **3**	53) **2**	54) **1**	55) **2**	56) **1**	57) **4**	58) **3**	59) **2**	60) **3**
61) **3**	62) **4**	63) **1**	64) **4**	65) **1**	66) **2**	67) **1**	68) **4**	69) **3**	70) **4**
71) **1**	72) **4**	73) **3**	74) **1**	75) **3**	76) **1**	77) **3**	78) **3**	79) **1**	80) **3**
81) **3**	82) **1**	83) **3**	84) **3**	85) **1**	86) **1**	87) **2**	88) **2**	89) **2**	90) **4**
91) **3**	92) **2**	93) **4**	94) **4**	95) **1**	96) **4**	97) **1**	98) **2**	99) **4**	100) **3**

BOTANY

101) **4**	102) **3**	103) **4**	104) **2**	105) **3**	106) **3**	107) **3**	108) **3**	109) **1**	110) **3**
111) **1**	112) **2**	113) **2**	114) **1**	115) **4**	116) **3**	117) **2**	118) **3**	119) **4**	120) **3**
121) **4**	122) **3**	123) **2**	124) **2**	125) **2**	126) **1**	127) **4**	128) **2**	129) **3**	130) **1**
131) **4**	132) **2**	133) **3**	134) **4**	135) **4**	136) **1**	137) **3**	138) **4**	139) **2**	140) **4**
141) **2**	142) **2**	143) **1**	144) **4**	145) **4**	146) **3**	147) **4**	148) **3**	149) **3**	150) **1**

ZOOLOGY

151) **3**	152) **3**	153) **4**	154) **2**	155) **2**	156) **4**	157) **1**	158) **4**	159) **2**	160) **1**
161) **3**	162) **2**	163) **1**	164) **2**	165) **4**	166) **3**	167) **2**	168) **1**	169) **3**	170) **4**
171) **1**	172) **3**	173) **2**	174) **2**	175) **4**	176) **2**	177) **3**	178) **4**	179) **1**	180) **3**
181) **2**	182) **4**	183) **2**	184) **4**	185) **2**	186) **1**	187) **3**	188) **4**	189) **3**	190) **1**
191) **2**	192) **2**	193) **4**	194) **3**	195) **2**	196) **2**	197) **4**	198) **4**	199) **3**	200) **1**

HINTS SOLUTIONS

PHYSICS

1. $h=\frac{g}{2u^2}x^2 \Rightarrow 20=\frac{10}{2\times 20\times 20}\times x^2 \Rightarrow x=40m$

$\therefore$ The distance travelled by A and B horizontally from the towers is 40m each. Hence distance between P and Q is 200 – 80 = 120 m

Now for the truck

$s=ut \Rightarrow u=\frac{120}{4}=30\,m/s$

2. $e_0=5V \;;\; e_{rms}=\frac{e_0}{\sqrt{2}}=\frac{5}{\sqrt{2}}$

3. $\frac{1}{v}+\frac{1}{u}=\frac{1}{f} \Rightarrow \frac{1}{v}+\frac{1}{-f}=\frac{1}{f} \Rightarrow \frac{1}{v}=\frac{2}{f}\;(or)\;v=\frac{f}{2}$

4.

$$L=\frac{N\phi}{I}=\frac{N\times BA}{I}=N\left(\frac{\mu_0 NI}{2r}\right)\times\frac{\pi r^2}{I}\Rightarrow L=\frac{\mu_0\pi N^2 r}{2}$$

$$L\propto N\Rightarrow\frac{108}{L_2}=\left(\frac{600}{500}\right)^2\Rightarrow L_2=75\,mH$$

5. (A) Conservation of energy can never be violated.
(B) Acceleration cannot be constant because the direction of motion of the body continuously changes

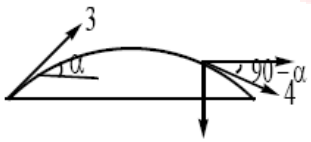
6. D_1 is reverse biased and D_2 is forward biased

$$I=\frac{V}{R}=\frac{20}{10}=2Amp$$

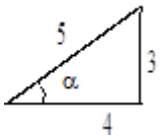
7. $3\cos\alpha=4\cos(90-\alpha)$

$3\cos\alpha=4\sin\alpha$

$\tan\alpha=\frac{3}{4}$



When u is velocity of projection and θ is the angle of projection



But $3\cos\alpha=u\cos\theta$

$$\therefore u\cos\theta=3\times\frac{4}{5}=2.4m/s$$

8. $A=A_0e^{-\lambda t}$; $\frac{A_0}{2}=A_0e^{-\lambda}\Rightarrow e^{\lambda}=2$

For t=3min,

$$\frac{A_0}{x}=A_0\left(e^{\lambda}\right)^{-3}=\frac{A_0}{\left(e^{\lambda}\right)^3}=\frac{A_0}{2^3}\Rightarrow x=2^3=8$$

9. $\bar{F}=q\left(\bar{v}\times\bar{B}\right)\Rightarrow -e\,\hat{j}=e\left(\hat{i}\times\bar{B}\right)$

$\therefore\bar{B}$ must be along $\hat{k}$

Since $\bar{V}_2=2\hat{k}$ and $\bar{B}$ are along the same direction, electron can not experiences any force

10. When R collides with Q, the particle R moves towards at Q gets back and collide with P. There are after R moves again moves back. There is possibly for R to collide with either with P (or) Q. Hence number of collisions is two.

11. Potential gradient = $\frac{iR}{\ell}=\frac{i\rho\ell}{A\ell}=\frac{i\rho}{A}$

$$=\frac{0.1\times10^{-7}}{10^{-6}}=10^{-2}V/m$$

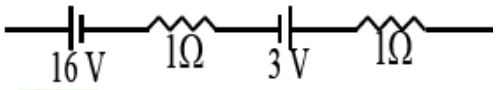
12. Apply the principle of homogeneity.

13. $\upsilon_E=\sqrt{2g_ER}$; $g_E=\frac{1}{3}g_P$

Now

$$\upsilon_P=\sqrt{2g_PR}=\sqrt{2\times3g_ER}\Rightarrow\upsilon_P=\sqrt{3}\upsilon$$

14. $V=\frac{E_1r_2-E_2r_1}{r_1+r_2}=\frac{20-8}{4}=\frac{12}{4}=3V$



Net emf = 13V
Net resistance = $2\,\Omega$

15. $PV=nRT\Rightarrow P\frac{m}{d}=nRT$

Total mass = n N m

$$\therefore\frac{P}{d}nNm=nRT\Rightarrow d=\frac{Pm}{KT}$$

$\left(\because K=\frac{R}{N}\right)$

16. Sensitivity $\propto\frac{1}{potential\ gradient}$

Potential gradient = $=i\rho=\left(\frac{E_P}{r+R_s+R}\right)\frac{R}{L}$

17. Here n= -1

$$C=\frac{R}{\gamma-1}+\frac{R}{1-n}=\frac{R}{\gamma-1}+\frac{R}{1+1}=\frac{R}{2}\left(\frac{\gamma+1}{\gamma-1}\right)$$

18.

$$E=\frac{W}{Volume}=\frac{1}{2}stress\times strain=\frac{1}{2}\frac{(stress)^2}{Y}=\frac{1}{2}\frac{F^2}{A^2Y}$$

$$\frac{E_1}{E_2}=\left(\frac{r_2}{r_1}\right)^4=\left(\frac{3}{2}\right)^4=\frac{81}{16}$$

19.

A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

20. $\frac{1}{2}\left(\frac{1}{2}mv_0^2+(m\times 9.8\times 10)\right)=m\times 9.8\times 10$

$v_0=14\,m/s$ (This is at 10m height from the ground)

So the height above this from where it is falling,

$v=\sqrt{2gh}\Rightarrow 14=\sqrt{2\times 9.8\times h}\Rightarrow h=10m$

Total height = 10 + 10 = 20 m

21. Magnetic field has no effect on the charged particle.

$$v=\sqrt{u_x^2+v_y^2}\Rightarrow 4v_0^2=v_0^2+\left(\frac{Eq}{m}t\right)^2$$

$$t=\frac{\sqrt{3}mv_0}{qE}$$

22. $Pt=ms\Delta\theta+\text{Energy lost}$

$1000t=(2\times 4200\times 50)+160t\Rightarrow t=8\,\text{m}\,20\,\text{sec}$ \a23

. $\frac{1}{2}mv_1^2\left(1+\frac{K^2}{r^2}\right)=\frac{1}{2}mv_2^2$, but $\frac{K^2}{r^2}=\frac{1}{2}$

$$\frac{v_1}{v_2}=\sqrt{\frac{2}{3}}$$

24. $n_0=\frac{V}{2\ell}$ and $n_c=\frac{3V}{4\ell}$

$$\frac{3V}{4\ell}-\frac{V}{2\ell}=55\Rightarrow\frac{V}{2\ell}\left(\frac{3}{2}-1\right)=55\Rightarrow\frac{V}{2\ell}=110$$

The fundamental frequency of the closed pipe

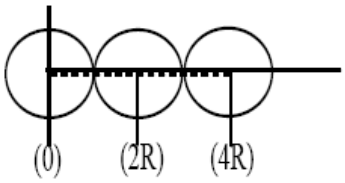
$$n=\frac{V}{4\ell}=\left(\frac{V}{2\ell}\right)\frac{1}{2}=\frac{110}{2}=55Hz$$

25. $3E=n4\pi r^2T-4\pi R^2T$, but $R=n^{1/3}r$

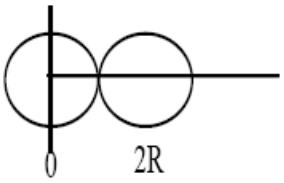
$$3\times 4\pi R^2T=n4\pi\left(\frac{R}{n^{1/3}}\right)^2T-4\pi R^2T$$

$$3=\left(n^{1-\frac{2}{3}}-1\right)\Rightarrow n^{1/3}=4\Rightarrow n=64$$

26.



$$x_1=\frac{(m\times 0)+m(2R)+m(4R)}{3m}=\frac{6R}{3}=2R$$



$$x_2=\frac{(m\times 0)+m(2R)}{2m}=R$$

$\therefore$ Shift in centre of mass = 2R – R = R

27.

$$E=nAVt=nA\frac{m}{d}t=\frac{50\times 250\times 10\times 3600}{7.5\times 10^3}=6\times 10^4\,J$$

28. $S_{Horizontal}=ut=1.5\times 4=6m$

$$S_{Vertical}=\frac{1}{2}at^2=\frac{1}{2}\frac{F}{m}t^2=\frac{1}{2}\times 1\times 16=8m$$

$$S_{Net}=\sqrt{6^2+8^2}=10m$$

29. As 2^{nd} surface silvered, $r_2=0$

$r_1+r_2=A\Rightarrow r_1=A$

$$\mu=\frac{\sin i}{\sin r}=\frac{\sin 2A}{\sin A}$$

$$\therefore\mu=\frac{2\sin A\cos A}{\sin A}=2\cos A$$

30. Number of photons incident on the metal/sec $= \dfrac{Total\ energy/\sec}{Energy\ of\ each\ photon} = \dfrac{IA}{E}$

Number of photoelectrons/sec

$= \dfrac{0.53}{100}$ Number of photons incident photons

$= \dfrac{0.53}{100}\dfrac{IA}{E} = 6.25\times10^{11}$

$KE_{max} = E - W_0 = 10.6 - 5.6 = 5eV$

31. $\beta = \dfrac{\lambda D}{d} = \dfrac{6000\times10^{-10}\times1.5}{15\times10^{-5}} = 6\times10^{-3}m$

$\beta' = \dfrac{6000\times10^{-10}\times2}{15\times10^{-5}} = 8\times10^{-3}m$

$\Delta\beta = 2\times10^{-3}m$

32. $T_{\underset{Effective}{H}} = \dfrac{T_1T_2}{T_1+T_2} = \dfrac{1620\times810}{1620+810} = 540\,\text{years}$

$\dfrac{N}{N_0} = \dfrac{1}{4} = \dfrac{1}{2^{t/T_H}};\ \dfrac{1}{2^2} = \dfrac{1}{2^{t/T_H}}$

$t = 2T_H = 2\times540 = 1080\,\text{years}$

33. $\dfrac{1}{\lambda} \propto \left(\dfrac{1}{n_1^2} - \dfrac{1}{n_2^2}\right);\ \dfrac{1}{\lambda_L} \propto \left(\dfrac{1}{1^2} - \dfrac{1}{2^2}\right) = \dfrac{3}{4}$

$\dfrac{1}{\lambda_P} \propto \left(\dfrac{1}{3^2} - \dfrac{1}{4^2}\right) = \dfrac{16-9}{144} = \dfrac{7}{144}$

$\lambda_L\dfrac{3}{4} = \lambda_P\dfrac{7}{144};\ \dfrac{\lambda_L}{\lambda_P} = \dfrac{7}{108}$

34.

$I = \varepsilon_0 CE_{rms}^2$

$= \dfrac{1}{2}\varepsilon_0 CE_0^2 = \dfrac{1}{2}\times8.8\times10^{-12}\times3\times10^8\times(36)^2 = 1.72Wm^{-2}$

35. $C_1 = \dfrac{\varepsilon_0 A}{x}\times3K;\ C_2 = \dfrac{\varepsilon_0 A}{2x}\times5K$

$\dfrac{V_1}{V_2} = \dfrac{C_2}{C_1} = \dfrac{5}{2}\times\dfrac{1}{3} = \dfrac{5}{6}$

36. $\gamma = \alpha_1 + \alpha_2 + \alpha_3$

$= \left(5\times10^{-5}\right) + \left(5\times10^{-6}\right) + \left(5\times10^{-6}\right)$

$= \left(50\times10^{-6}\right) + \left(5\times10^{-6}\right) + \left(5\times10^{-6}\right)$

$= 60\times10^{-6}\ /^oC$

$\beta = \dfrac{2\gamma}{3} = \dfrac{2\times60\times10^{-6}}{3} = 40\times10^{-6}\ /^oC$

37. As electric field E is related to potential V through the relation

$E = -\dfrac{dV}{dr} \Rightarrow E_x = -\dfrac{dV}{dx} = -\dfrac{d}{dx}\left(4x^2\right) = -8x$

$E_y = -\dfrac{dV}{dy} = -\dfrac{d}{dy}\left(4x^2\right) = 0$ and

$E_z = -\dfrac{dV}{dz} = -\dfrac{d}{dy}\left(4x^2\right) = 0$

So, $\vec{E} = \hat{i}E_x + \hat{j}E_y + \hat{k}E_y = -8x\hat{i}$

38. $\dfrac{40}{100} = 1 - \dfrac{T_2}{500} \Rightarrow T_2 = 300K$

$\dfrac{60}{100} = 1 - \dfrac{T_2}{T_1} \Rightarrow \dfrac{T_2}{T_1} = \dfrac{4}{10} \Rightarrow T_1 = \dfrac{10}{4}\times300$

$\therefore T_1 = 750K$

39. $\dfrac{n_1+n_2}{\gamma-1} = \dfrac{n_1}{\gamma_1-1} + \dfrac{n_2}{\gamma_2-1} \Rightarrow \gamma = 1.42$

40. $3 = \dfrac{Gm^2}{2^2}$ and $2 = \dfrac{Gm_1}{1^2}$

$\dfrac{3}{2} = \dfrac{1}{4}\dfrac{m_2}{m_1} \Rightarrow \dfrac{m_1}{m_2} = \dfrac{1}{6}$

41. $F_1 = \dfrac{1}{4\pi\varepsilon_0}\dfrac{r_1q_2}{\left(\dfrac{r}{2}+\dfrac{r}{2}\sqrt{4}\right)^2},$

$F_2 = \dfrac{1}{4\pi\varepsilon_0}\dfrac{q_1q_2}{\left(\dfrac{2}{3}r+\dfrac{1}{3}\sqrt{9}\right)^2}$

$\therefore \dfrac{F_1}{F_2} = \dfrac{100}{81}$

42. Neutron being charge less, it cannot deviate in magnetic fields.

43. $t = \dfrac{A}{a}\left(\sqrt{\dfrac{2h_2}{g}} - \sqrt{\dfrac{2h_1}{g}}\right)$

$$t=\frac{64A}{A}\left[\sqrt{\frac{2\times164}{g}}-\sqrt{\frac{2\times44}{g}}\right];$$

$$t=128\sqrt{\frac{2h}{g}}$$

44. According to Joule's law W = JQ
Loss in energy = ms θ

$$\frac{1}{2}\frac{C_1C_2}{C_1+C_2}\left(V_1-V_2\right)^2=ms\theta$$

$$\frac{1}{2}\times\frac{\left(8.4\times10^{-3}\right)^2}{2\left(8.4\times10^{-3}\right)}\left(1000\right)^2=500\times10^{-3}\times0.1\times4200\times\theta$$

$$;\ \therefore\theta=10^0C$$

45. The earth's magnetic field is due to electrical currents produced by convective motion of metallic fluids (molten iron and nickel) in the outer core of the earth. This effect is known as dynamo effect

46. Answer (4)

$$\frac{\Delta f}{f}=\frac{1}{2}\frac{\Delta T}{T}$$

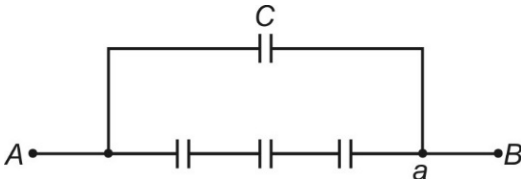
$$\therefore\frac{\Delta f}{400}=\frac{1}{2}\left(\frac{2}{100}\right)$$

$$\therefore\Delta f=4Hz$$

47. $Y=2A\sin kx\cos\omega t$
This is an equation of standing wave with maximum amplitude 2A
Maximum practice velocity
$V_P=\omega\times amplitude=\omega\times2A=2\omega A$

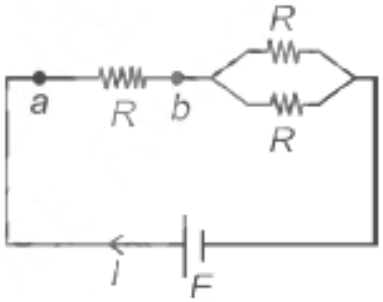
48. Along the direction of electric field, electric potential falls. At points C and D potential is same because line joining CD is ⊥ to electric field $V_C = V_D$. Similarly line joining B to A is perpendicular to electric field. Both are equipotential points.
$V_B = V_A$
So, $V_B = V_A$ but is greater than ($V_C = V_D$)

49. Redrawn circuit



$$C_e=\frac{C}{3}+C=\frac{4C}{3}$$

50. To calculate energy, pot. difference across capacitor in steady state is calculated.
Redrawn circuit



Current in circuit $I=\frac{E}{R+\frac{R}{2}}=\frac{2E}{3R}$

Pot. Difference across resistance R

$$V_{ab}=I\times R=\frac{2E}{3R}\times R=\frac{2}{3}E$$

This will be pot. Difference across capacitor in steady state. Energy stored

$$=\frac{1}{2}\times C\times\left(\frac{2E}{3}\right)^2$$

$$=\frac{2CE^2}{9}$$

CHEMISTRY

51. R^0 is the radius of 1st orbit in H-atom and is called Bohr's radius and its value is $0.529A^0$

52. Given ratio is 9: 15 :1 :3
Emperical formula is $C_6H_{15}N_1O_3$
If there are 18 oxygen atoms per molecule then the exact ratio of atoms is 54:90:6:18
Thus molecular formula is $C_{54}H_{90}N_6O_{18}$

53. d-orbitals starts from n=3

54. For same type of electrolytes solubility increase as K_{sp} increases

55. NH_3, H_2O *and* SO_2 Molecules have dipole moment due to their irregular geometry

56. i) I_3^-, Sp^3d, linear ii) H_3O^+, sp^3, pyramidal iii) PCl_4^-, sp^3, tetrahedral

57. Total moles ,n=2+1=3

$$PV = nRT \Rightarrow P = \frac{nRT}{V} = \frac{3\times 0.0821\times 300}{10} atm$$

58. Acidic nature of oxides increase from left to right in a period

59. Elements with stable electronic configuration have exceptionally lower electron affinity value.

60. Alkali metals are strong reducing agents. In aqueous solution Li^+ is strongest reducing agent due to its highest hydration energy.

61. $NaOH + H_2O_2 \rightarrow NaHO_2 + H_2O$ it is neutralization reaction. It represents acidic nature of H_2O_2

62. Oxides of Boron are acidic

63. The important ingredients present in Portland cement are dicalcium silicate (Ca_2SiO_4) 26%, tricalcium silicate (Ca_3SiO_5) 51% and tricalcium aluminate $(Ca_3A_{12}O_6)$ 11%

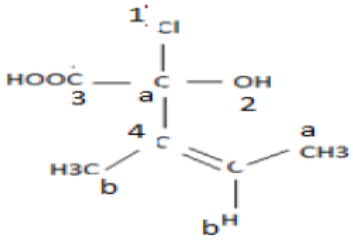
64. Pb^{+2} is more stable than Pb^{+4} due to inert pair effect

65. statement A, B & D are wrong

66. The presence of CO_2, H_2, O_2, N_2 NO_3^{-1}, $(PO_4)^{-3}$, B, Cl, Cu in water leads to Eutrophication of the pond

67. $\Delta_r G^0 = -2.303RT \log K_C$, $\Delta_r G^0$ value decrease as K_C increases

68. Kjeldahl's method is not applicable to compounds containing nitrogen in nitro, azo, Nitroso group and for nitrogen present in the ring because as nitrogen of these compounds does not change to ammonium sulphate easily

69. 

In the above compound the configuration about chiral carbon is R. Since the groups with higher priority marked as 'a' are on the same side of the double bond, the geometry about the C=C is Z

70. A is CH_3COOH and B is CH_3COONa

71. $HC \equiv CH + dil.H_2SO_4 \xrightarrow{HgSO_4} CH_2 = CH - OH$
$\xrightarrow[Isomerism]{Keto-Enol} CH_3CHO$

72. $C_6H_5COOH + 2NaOH \xrightarrow{CaO,\Delta} C_6H_6 + Na_2CO_3$
$C_6H_5OH + Zn \xrightarrow{\Delta} C_6H_6 + ZnO$

73. The presence of +R group increase the reactivity of benzene towards electrophilic substitution reaction. $-OCH_3$ is +R group

74. $\Delta T_f = K_f \times m = 1.86 \times \frac{342}{342\times 1} = 1.86^\circ C$
$\therefore$ Freezing point of solution= $= -1.86^\circ C$

75. sodium benzoate is commonly used food preservative

76. For zero order reaction $t_{\frac{1}{2}} = \frac{a}{2k}$, slope= $\frac{a}{2k}$

77. Lactose is a disaccharide of β -D-glucose and β -D-galactose

78. in hydrides of VA group bond angle decrease down the group as bond polarity decreases.

79. Conc. H_2SO_4 is a strong dehydrating agent. $HCOOH \xrightarrow{con.H_2SO_4} CO\uparrow + H_2O$

80. B should have branch on one side of double bond and no branch on other side

& double bond should be at one end. A should be 3^0 alcohol .

81. $XeF_6 + 3H_2O \rightarrow XeO_3 + 6HF$

82. F_2 is better oxidising agent than Cl_2 though it has lower Electron gain enthalpy than Chlorine. It is due to higher hydration enthalpy of F^- ion and its Lower bond enthalpy of F_2

83. Lower the gold number more is the protective power of lyophilic sol

84. ions having incompletely filled (n-1)d orbitals exhibit colour due to d-d transition in visible region.

85. Cetyltrimethyl ammonium bromide is a cationic detergent.it has germicidal action

86. $\Lambda^0 NaBr = \Lambda^0 NaCl + \Lambda^0 KBr - \Lambda^0 KCl$

87. During Schottky defect as equal number of oppositely charged ions are missing from crystal lattice, density will decrease.

88. $\left[Ni(CO)_4\right]$ is diamagnetic and tetrahedral due to Sp^3 hybridization of Ni

89. Cross linked polymers have strong covalent bonds between linear polymer chains

90. in Wolff – Kishner reduction aldehydes and ketones are reduced to corresponding alkanes

91. In A electron density on nitrogen is maximum as it is localized, Where in D, oxygen is more electronegative so the density on nitrogen decreases and in C the lone pair on nitrogen is involved in resonance so the density on nitrogen is least

92. If K_c for the reaction $A + 2B \rightleftharpoons 2C$ is 40 then for $2C \rightleftharpoons A + 2B$ is 1/40 and for $C \rightleftharpoons \frac{1}{2}A + B$ is $(1/40)^{1/2}$

93. Copper has greater affinity towards sulphur and iron towards oxygen

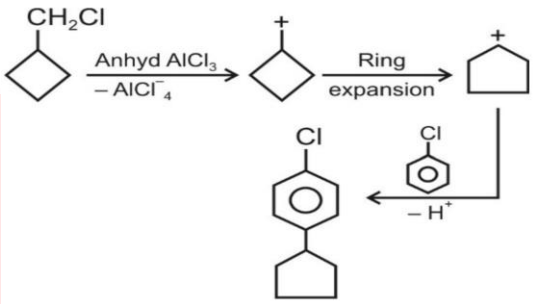
94. it is electrophilic substitution and electrophile is di chlorocarbene

95. acetaldehyde undergoes aldol condensation as it has alpha carbon hydrogen

96. Ag_2S is concentrated by leaching with NaCN

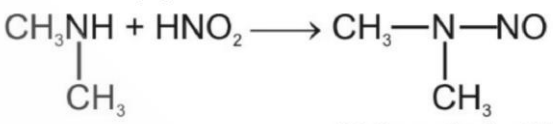
97. Zn, Cu and Fe on reaction with hot concentrated HNO_3 give metal nitrate and NO_2 gas

98.



99. In Cannizzaro reaction , two molecules of aldehyde are involved along with two OH ion at higher conc. Of NaOH

100.



(Yellow oily liquid)

BOTANY

101. Lac operon is under positive and negative control. If glucose concentration is high, the lamp is not synthesised. So there is no camp cap complex. RNA polymerase will not bind to promoter

102. Viruses lack capsule

103. Two linked genes showing 50 map unit distance means they are showing 50% recombinant frequency.

104. Casuarina contain Frankia

105. Ribozyme is catalytic RNA

106. Ribozyme is catalytic RNA

107. Ustilago is basidiomycetes

108. n genotype Aa Bb Cc Dd Ee value of n is 3 (Aa Bb Cc)

109. Collectotrichum falcatum is cause of red rot of sugarcane
110. M Incognitia infects root of tobacco plant
111. Lichens is air pollution indicator
112. Vascular tissues – Xylem and phloem are absent in bryophytes
113. In complementary gene interaction both A and B should be dominant to produce colour
114. Genes for yellow body colour and white traits are present on X chromosome
115. *Marsilea, Salvinia, Selaginella* are heterosporous pterophytes.
116. DNA gyrase join DNA segments
117. Anabaena cyanobacteria is found in coralloid roots.
118. Translocation involves transfer of DNA segment from one pair (one linkage group) to another pair (another linkage group)
119. Beadle and tatum give one gene one enzyme hypothesis
120. Kinetochore is site for attachment of spindle fibre.
121. Bacellus thurengeiense is source of cry gene
122. Pure line with all dominant = 9
Pure line will all recessive = 3
Total increase if all are dominant = 6
123. rRNA is 80% of total RNA
124. Lampbrush chromosome is homologous chromosome
125. Shuttle vector can replicate in both prokaryotes and eukaryotes
126. Phospholipid contain CHONP
127. DNA polymerase – I perform proof reading in both directon
128. Cytochrome b6 is component of ETS in light reaction.
129. Potato spindle tuber disease is caused by viroid.
130. Protein synthesis is dehydration or condensation process solution
131. In mitochondria high H^+ concentration is found in intermembrane space
132. Round up ready soyabean is resistant to herbicide glyphosate
133. Water splitting release H^+ , electron and oxygen
134. New strand is synthesized according to base occurring rule
135. NAD accept hydrogen released during conversion of PGAL to 1,3 B, PGA
136. Zeatin is natural cytokinenin
137. rRNA is adapter RNA
138. Photoxidation is due to light intensity beyond saturation point
139. Denitrification reduce soil fertility
140. Repressor protein is produce of R gene
141. Lateral root develop from pericycle
142. Antipodal degenerate after fertilisation
143. Apomixis is seed formation without fertilisation
144. Cellulase, digest cell wall
145. Hershey and chase conducted experiment on bacteriophage
146. Answer (3)
When effluent is passed into secondary settling tank flocs are sedimented.
147. Answer (4)
Alkaloids – Morphine Lectins – Concanavalin A Drugs – Vinblastin
148 Answer (3)
Climax community is more stable and shows niche specialization. Xerarch succession leads to mesic conditions.
149. Answer (3)
Lyases catalyse breakdown of covalent bond in absence of water with the removal of group, forming double bond.
150. Answer (1)
Proteins coded by cryIAc and cryIIAb control cotton bollworm.

ZOOLOGY

151. Radial symmetry is present in both cnidarians and ctenophores
152. All echinoderms posses water vascular system

153. Calcareous ossicles form endoskeleton in Echinoderms
154. Tendons are made up of Dense regular connective tissue
155. *Periplanata americana* has neurogenic heart
156. Pyloric sphincter guards the opening of stomach into the duodenum
157. Oxyntic cells secrete Castle's intrinsic factor, which is required for absorption of vitamin B_{12}
158. Partial pressure of Nitrogen has no influence for the delivary of oxygen at tissues
159. Volume of air that will remain in the lungs after a normal expiration is represented as functional residual capacity FRC = ERV + RV
160. Difficulty in breathing, causing wheezing due to inflammation of bronchi and bronchioles is due to Asthma
161. Hepatic portal vein carry blood after absorption of nutrients from intestine into liver
162. 70% of ventricular filling occurs during joint diastole
163. Modified tubular epithelial cells of DCT are called Macula densa
164. Aldosterone is responsible for absorption of water, sodium and secretion of potassium at DCT
165. Sarcomere is absent in visceral muscle as they are unstraited
166. Axolemma is more permeable to K^+ during rest
167. Iris is involved in the regulation of diameter of pupil
168. Epinephrine is derived from an amino acid Tyrosine
169. Insulin and glucagon are antagonistic to each other
170. Spermatogenesis starts at the age of puberty due to significant increase in Gonadotropin releasing hormone (GnRH)
171. Ovulation in a women with 28-day menstrual cycle occurs 14 days prior to menstruation
172. Seminal plasma in human males is rich in Fructose and Calcium
173. Clitoris lies at the upper junction of Labia minora
174. Contraceptive pills retard the entry of sperms
175. ZIFT employs in-vitro fertilization and test tube baby program
176. According to Oparin, Primitive atmosphere was reducing atmosphere
177. Finches in Galapagos islands provide evidence for natural selection
178. Eye of octopus and of mammal are analogous structures that are anatomically different
179. *Entamoeba* and *Plasmodium* are protozoan parasites
180. The injection of preformed antibodies is passive immunisation
181. The given chemical structure is Morphine and it is an effective sedative
182. Hisardale is a cross breed produced by mating Bikaneri ewes, and Marino Rams
183. ECG is an electrophysiological study
184. Above chart explains Autosomal recessive trait
185. Males are ZZ type in birds-(Neophron)
186. Pacific salmon breed only once in their life time
187. Orchid and Bumble bee shows mutualism
188. In the given graph, D is time
189. Pyramid of Biomass in an ocean is invert
190. Frog is a Carnivore
191. David Tilman's outdoor plots
192. Gametes of threatened species can be preserved by using cryopreservation
193. Montreal protocol was signed in 1987
194. DDT accumulation leads to premature breaking of Eggs. UB – B rays causes snow blindness. Algal blooms causes deterioration of water quality. Deforestattion may lead to soil erosion.

195. Natural ageing of a lake by nutrient enrichment of its water is called Eutrophication
196. Cockroach is protostomic with schizocoelom type of the development of the coelom.
197. Ventral nervous system is present in non chordates
198. Random mating does not bring about change in gene frequency
199. The main function of compound epithelium is to provide protection against chemical and mechanical stresses.
200. Carps are freshwater fishes.