ANSWER KEY

AITS (NEET)

Class-XI

Part Test-02

PHYSICS

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

CHEMISTRY

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

BIOLOGY

Q.101 (2)	**Q.102** (2)	**Q.103** (3)	**Q.104**-(1)	**Q.105** (4)	**Q.106** (1)	**Q.107** (2)	**Q.108** (1)	**Q.109** (3)	**Q.110** (1)
Q.111 (3)	**Q.112** (2)	**Q.113** (3)	**Q.114** (1)	**Q.115**-(2)	**Q.116** (4)	**Q.117** (3)	**Q.118** (1)	**Q.119** (4)	**Q.120** (3)
Q.121 (2)	**Q.122** (4)	**Q.123** (4)	**Q.124** (1)	**Q.125** (1)	**Q.126** (3)	**Q.127** (3)	**Q.128** (3)	**Q.129** (4)	**Q.130** (3)
Q.131 (4)	**Q.132** (2)	**Q.133** (2)	**Q.134** (2)	**Q.135** (3)	**Q.136**-(4)	**Q.137**-(4)	**Q.138** (1)	**Q.139** (4)	**Q.140** (1)
Q.141 (2)	**Q.142** (1)	**Q.143** (3)	**Q.144** (1)	**Q.145** (1)	**Q.146** (2)	**Q.147**-(2)	**Q.148** (4)	**Q.149** (1)	**Q.150** (4)
Q.151 (1)	**Q.152** (2)	**Q.153** (4)	**Q.154** (1)	**Q.155** (2)	**Q.156** (2)	**Q.157** (2)	**Q.158** (3)	**Q.159** (4)	**Q.160** (2)
Q.161 (1)	**Q.162** (1)	**Q.163**-(3)	**Q.164** (3)	**Q.165** (1)	**Q.166** (2)	**Q.167** (3)	**Q.168**-(3)	**Q.169** (3)	**Q.170** (3)
Q.171-(2)	**Q.172** (3)	**Q.173** (2)	**Q.174** (1)	**Q.175** (4)	**Q.176** (3)	**Q.177** (1)	**Q.178** (4)	**Q.179**-(3)	**Q.180** (3)
Q.181 (1)	**Q.182** (4)	**Q.183** (4)	**Q.184** (4)	**Q.185** (3)	**Q.186** (3)	**Q.187**-(1)	**Q.188** (1)	**Q.189**-(2)	**Q.190** (3)
Q.191 (3)	**Q.192**-(2)	**Q.193** (1)	**Q.194** (4)	**Q.195** (2)	**Q.196**-(1)	**Q.197** (4)	**Q.198**-(3)	**Q.199**-(2)	**Q.200** (1)

HINT AND SOLUTIONS

PHYSICS
SECTION-A

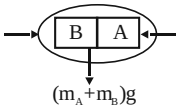
Q.1 (2)

$\tan 37^\circ = \frac{a}{g} \Rightarrow \frac{3}{4} = \frac{a}{g}$

$\Rightarrow a = \frac{3}{4} \times 10 = 7.5\ m/s^2$

Q.2 (4)

FBD of A & B both



There is no force present to balance $(m_A + m_B)g$ in vertically upward direction.

Q.3 (3)

Here, y-axis is in vertical.

$\therefore$ body is being moved in horizontal plane due to x-component of given force.

$a = \frac{F_x}{m} = \frac{4}{5}$

$V = u + at$

$4 = 0 + \frac{4}{5}t$

$t = 5s$

Q.4 (1)

$V = \frac{dx}{dt} = 2 + 6t + 15t^2$

$a = \frac{dV}{dt} = 6 + 30t$

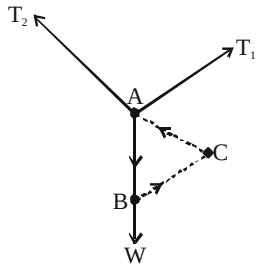
at t = 1s
$a = 6 + 30 = 36\ m/s^2$
$F = ma = 1 \times 36$
$F = 36\ N$

Q.5 (3)

$$F = ma = m\left[\frac{V^2 - U^2}{2s}\right]$$

$$F = 20\left[\frac{(5)^2 - (20)^2}{2\times100}\right] = -37.5\ N$$

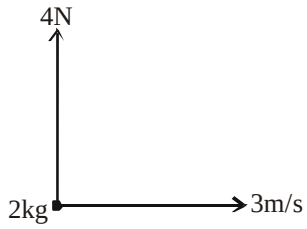
Q.6 (4)



$\overrightarrow{AB} = \overrightarrow{W}, \overrightarrow{BC} = \overrightarrow{T_1}, \overrightarrow{CA} = \overrightarrow{T_2}$

$\overrightarrow{AB} + \overrightarrow{BC} + \overrightarrow{CA} = 0$

Q.7 (3)



$F_y = 4$
$a_y = 2\ m/s^2$

so, $s_y = \frac{1}{2}(2)(4)^2$

$s_y = 16\ m$
distance coverd horizontly
$S_x = 3 \times 4 = 12\ m$
so total distance

$= \sqrt{S_x^2 + S_y^2} = \sqrt{14 + 256} = 20\ m$

Q.8 (1)
Weight of the disc will be balanced by the force applied by the bullet on the disc in vertically upward direction.
$F = nmv = 40 \times 0.05 \times 6 = Mg$

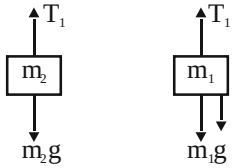
$$= \frac{40\times0.05\times6}{10} = 1.2kg$$

Q.9 (2)

$$\frac{vdm}{dt} = ma$$

$1 \times 600 = 120\ a$
$a = 5\ m/s^2$

Q.10 (4)
FBD of m_2,
$T_1 = m_2g$ .... (1)
FBD of m_1
$T_2 + m_1g = T_1$ .... (2)



From equation (1) and (2)
$T_2 = (m_2 - m_1)g$

Q.11 (1)
The compartments have a spring system between them. Firstly, the engine comes to rest ; then the compartment attached to it will come to rest.

Q.12 (3)
$T_{max} = m(g - a_{min})$

$$\frac{2}{3}mg = m(g - a_{min}) \Rightarrow a_{min} = \frac{g}{3}$$

Q.13 (2)
In case (I), accelerationof block in horizontal direction
$a_1 = (g\sin30^o)\cos30^o$ ...(1)
In case (II), acceleration of block in horizotnal direction is acceleration of wedge.
$a_1 = g\tan30^o$ ...(2)

Ratio $\left(\frac{a_1}{a_2}\right) = \cos^2 30^o = \frac{3}{4}$

Q.14 (3)
As initially, the acceleration of aeroplane is in upward direction then it decrease.

Q.15 (3)
Concept of Inertia.

Q.16 (4)
Acceleration of 2kg block due to force of 13N is

$$a_1 = \frac{13}{2} = 6.5\ m/s^2$$

Now, acceleration of 4kg block due to force of 24 N is

$a_2 = \frac{24}{4} = 6\ m/s^2$

$\because\ a_2 < a_1$

$\therefore$ block 2kg will move faster than 4kg.

Q.17 (1)

Factual.

Q.18 (3)

$f = \mu N = 0.5 \times 2 \times 10 = 10N$

Net retarding force = 10 + 20 = 30 N

$\therefore$ retardation = $\frac{30}{2} = 15\ m/s^2$

Q.19 (2)

Theory

Q.20 (1)

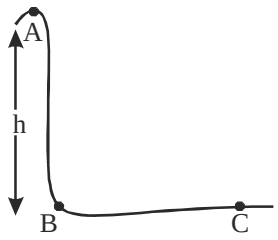
From energy conservation U(x) = 16 J/m

and $\frac{dU}{dx} = 16\ J/m$

Hence $U = 16x \Rightarrow 16 = 16x$

$x = 1\ m$

Q.21 (3)



$\therefore$ Total work done from $C \to B \to A$

is equal to $W_{BC} + W_{BA} = 2mgh$

as $W_{AB} = mgh = W_{BC}$

Q.22 (3)

Net vertical displacement is zero

$\therefore$ Word done by gravity = 0

Q.23 (1)

From graph $\Delta U = 4J$ from $x_1 = 2$ to $x_2 = 5$

Now $\Delta K = 4J$

$\Rightarrow \frac{1}{2} \times 1 \times V^2 - 0 = 4$

$\Rightarrow \frac{1}{2}v^2 = 4 \Rightarrow v = \sqrt{8} = 2\sqrt{2}\ m/s$

Q.24 (4)

Internal forces may or may not change kinetic energy of system.

Q.25 (1)

K.E. = W = Fx

K.E. = max

$K.E. \propto x$ [$\because$ a = constant]

Q.26 (2)

$\left(\frac{mgh}{t}\right) \times \frac{50}{100} = 1 \times 10^9$

$(\rho V)g \times \left(\frac{h}{t}\right) \times \frac{1}{2} = 10^8 \Rightarrow V = \frac{2 \times 10^9}{500 \times 10 \times 10^3}$

$= 400\ m^3$

Q.27 (4)

$E = \frac{1}{2}m(v^2 - u^2)$

$E_1 = \frac{1}{2}m(10^2 - 0^2)$

$E_1 = \frac{1}{2}m \times 100$ .... (1)

$E_2 = \frac{1}{2}m(20^2 - 10^2)$

$E_2 = \frac{1}{2}m \times 300$ .... (2)

$\Rightarrow E_2 = 3E_1$

Q.28 (2)

$F = (3x^2 - 2x + 5)\ N$

$W = \int_1^3 F dx$

$W = \int_1^3 (3x^2 - 2x + 5)\ dx$

$= [x^3 - x^2 + 5x]_1^3$

$= [27 - 9 + 15 - 1 + 1 - 5]$

$= 28\ J$

Q.29 (2)

Force is perpendicular to displacement hence work done is zero

Q.30 (2)

W = mgh

which is independent of time.

Q.31 (1)

By WET

$W_g + W_{fr} = 0$

$mg \sin 30\ (f_0) + W_{fr} = 0$

$W_{fr} = -mg \sin 30(10)$

$= -1 \times 10 \times \frac{1}{2} \times 10 = -50\ J$

Q.32 (3)

$$P_1 = \frac{w_1}{t_1} = \frac{60 \times g \times h}{12}$$

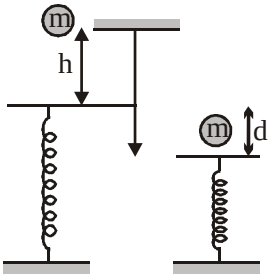
$$P_2 = \frac{50 \times g \times h}{11}$$

$$\frac{P_1}{P_2} = \frac{60}{12} \times \frac{11}{50}$$

$$\frac{P_1}{P_2} = \frac{11}{10}$$

Q.33 (2)

Situation is shown in figure. When mass m falls vertically on spring, then spring is compressed by distance d.

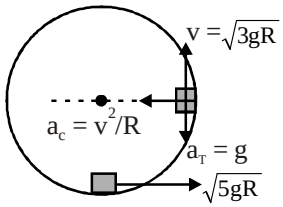


Hence, net work done in the process is

W = potential energy stored in the spring + loss of potential energy of mass

$$= mg\,(h + d) - \frac{1}{2}kd^2$$

Q.34 (1)



$$a = \sqrt{a_c^2 + a_T^2}$$

$$= \sqrt{(3g)^2 + g^2}$$

$$= g\sqrt{10}$$

Q.35 (4)

$W_{cons.} = -\Delta U$

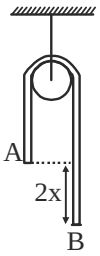
$= -(U_f - U_i)$

$W_{cons.} = U_i - U_f$

SECTION-B

Q.36 (1)

Let mass per unit length be λ



$$\text{Acceleration} = \frac{(2x\lambda)g}{2L\lambda} = \frac{x}{L}g$$

Q.37 (1)

Here,

$$\frac{dm}{dt} = \frac{8}{5.6}\ \text{g/sec}$$

$u_{rel} = 7$ cm/s

$$F_{thrust} = u_{rel}\frac{dm}{dt}$$

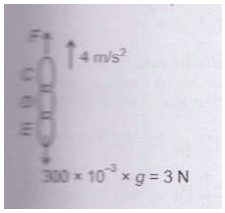
$$= 7 \times \frac{8}{5.6} = 10 \text{ dyne} = 10 \times 10^{-5}\ \text{N}$$

$F = 10^{-4}$ N

Q.38 (1)

$F_{net} = ma$

FBD of links C,D and E combined



$F - 3 = (0.3) \times 4$

$F = 3 + 1.2 = 4.2$ N

Q.39 (3)

$$a = \frac{v}{t} = \frac{4}{2} = 2\text{m/s}^2$$

$F - f = ma$

or $200 - \mu \times 30 \times 10 = 30 \times (2)$ $\quad \therefore \mu = 0.47$

Q.40 (4)

$$a_{common} = \frac{100}{40 + 60} = 1\ \text{m/s}^2$$

$f_{s,\,max} = \mu_s N_{12} = 0.2 \times 400 = 80$ N

$f_{required} = ma = 60 \times 1 = 60$ N

$\because f_{required} < f_{s,\,max} \Rightarrow$ blocks move together and

$f = f_{required} = 60$ N

Q.41 **(4)**

conservative forces are not dissipative forces. Viscous force is dissipative in mature. Also, the work done by viscous force in a closed path is not zero. Hence, viscous force is non-conservative force.

Q.42 (3)

Work done

$w = \Delta KE$

(a) $w = \frac{1}{2}(2)(2)^2 - \frac{1}{2}(2)\cdot(4)^2 = -12\ J$

(b) $w = \frac{1}{2}(1)[(6)^2 - (4)^2] = 10J$

(c) $w = \frac{1}{2}(2)[(3)^2 - (0)^2] = 9J$

(d) $w = \frac{1}{2}\times 5[4-1] = 7.5\,J$

Q.43 (1)

Acceleration of system $a = \frac{3g}{2+3} = 6m/s^2$

Now tension in system $T = 2a = 12N$

$\Rightarrow$ Displacement of 2kg block in 2sec

$S = \frac{1}{2}at^2 = \frac{1}{2}\times 6\times(2)^2 = 12m$

$\therefore W = T \times s = 12 \times 12 = 144$ joule

Power $= \frac{W}{t} = \frac{144}{2} = 72$watt

Q.44 (2)

Power, $p = kx^2 = Fv = \left(mv\frac{dv}{dx}\right)v$

$\Rightarrow v^2dv = \frac{k}{m}x^2dx \Rightarrow \frac{v^3}{3} = \frac{k}{m}\frac{x^3}{3} \Rightarrow v \propto x$

Q.45 (1)

Total mechanical

Energy = 200 + 600 = 800 J

$mgh = 800 \Rightarrow h = 20$ m

$\frac{1}{2}mv^2 = 800 \Rightarrow v = 20ms^{-1}$

Q.46 (2)

$T.E._A = T.E._C$

$P.E._A + K.E._A = P.E._C + K.E._C$

$mg \times 14 + 0 = mg \times 7 + K.E._C$

$K.E._C = 7mg$

$= 7 \times 2 \times 10$

$K.E._C = 140$ J

Q.47 (1)

Given, F = 20 kg-wt = 20 × 9.8 N

q = 60° and s = 20 m

Work done = F s cosq

= 20 × 9.8 × 20 × cos60° = 1960 J

Q.48 (1)

. $\frac{dU}{dx} = 6x - 6x^2 = 0 \Rightarrow 6x(1-x) = 0\ ;\ x = 0, 1 = \frac{d^2U}{dx^2}$

$= 6 - 12x$

at x = 0, $\frac{d^2U}{dx^2} > 0 \Rightarrow$ stable equilibrium

at x = 1, $\frac{d^2U}{dx^2} < 0 \Rightarrow$ unstable equilibrium

Q.49 (3)

If body returns to initial position, then

$W = U_i - U_f$

$W = 0$

Q.50 (4)

$x = 2t^4 + 5 \Rightarrow v = 8t^3\ t = 1s\ v_f = 8(1)^3 = 8m/s$

form work energy theorem $W = \frac{1}{2}m(v_f^2 - v_i^2)$

$= \frac{1}{2}\times 2\times(8^2 - 0)$

$= 64$ J

CHEMISTRY
SECTION-A

Q.51 (3)

$\underset{109.5^\circ}{CH_4} > \underset{107^\circ}{NH_3} > \underset{104.5^\circ}{H_2O}$

Q.52 (2)

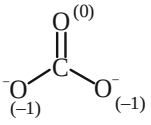
Graphite is covalent or network solid.

Q.53 (3)

$BeO \rightarrow$ Amphoteric

While rest of oxides are basic.

Q.54 (2)



average formal charge on O atom $= -\frac{2}{3}$

Q.55 (1)
Due to triple bond is are between two N atoms.

Q.56 (4)
Each oxygen atom has two H-bond around it

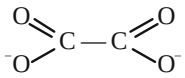
Q.57 (3)
BrF_3 has 3 bond pair and 2 lone pair.

Q.58 (2)
Bond order $Be_2 = 0$

Q.59 (3)
O_2^+ paramagnetic

Q.60 (2)
NO has 15 electron and O2 has 16 electron, both bond order increases by 0.5 by removing electron.

Q.61 (1)
$^{-}O-\underset{\underset{O}{\|}}{C}-O^{-}$ has no co-ordinate bond.

Q.62 (3)

$5\sigma, 2\pi$ bond

Q.63 (4)
Anionic part of dimer of ClO_3 is $[ClO_4^-]$ It is tetrahedral
So all bond length are equal has 25% s-character
as it has all single bond so $p\pi$-$d\pi$ bond are not present.

Q.64 (4)
All of them.

Q.65 (2)
NH_2^- has 2 lone pair.
NH_3 and 1 and NH_4^+ has zero lone pair.

Q.66 (2)
Polarizing power $\propto$ charge of cation.

Q.67 (2)

$$\text{Bond length} \propto \frac{1}{\text{Bond order}}$$

Q.68 (1)
S + pz does not overlap.

Q.69 (1)
LiF has lattice energy so insoluble in water.

Q.70 (4)
SiO_2 and SiC are covalent solid

Q.71 (3)
$\Delta G^o = -2.303\ RT \log K_C$
if $K_C = 1$ then $\Delta G^o = 0$

Q.72 (2)
$\Delta ng = 0$ so $\Delta H = \Delta U$.

Q.73 (2)
$\Delta G = \Delta H - T\Delta S$, ΔH = –ve and ΔS = –ve.
Value of ΔG increases with decrease in temperature.

Q.74 (2)

$C + \frac{1}{2}O_2 \longrightarrow CO$ $\quad \Delta H = -26.4.$

$C + O_2 \longrightarrow CO_2$ $\quad \Delta H = -94.6$

$CO + \frac{1}{2}O_2 \longrightarrow CO_2$ $\quad \Delta H = -94.6 - (-26.4) = -68.2$ kcal.

Q.75 (2)
During adsorption of gas
$\Delta S < 0, \Delta H < 0, \Delta G < 0, \Delta S_{Total} > 0$

Q.76 (3)
$\Delta G = -RT \ln K$
$= -2.303\ RT \log K$
When k = 1
log k = 0
Hence $\Delta G = 0$

Q.77 (3)
$\Delta H = E_a - E_b$
$5 = 15 - E_b$
$E_b = 15 - 5 = 10$ kJ mol

Q.78 (4)
(1) $\Delta G = \Delta H - T\Delta S$ is correct Helm Holtz Eq.
(2) At Eq. $\Delta G = 0$

$$\therefore T = \frac{\Delta H}{\Delta S}$$

(3) ΔS value for most of the liquids are about $88 JK^{-1}$ $mole^{-1}$
(4) So all these are correct

Q.79 (4)
$\Delta H = \Delta U$, when $\Delta ng = 0$.

Q.80 (4)
$\Delta E = 0$ at const. T for ideal gas.

Q.81 (1)

$$\Delta S = \frac{\Delta H}{T} = \frac{186.5}{373}$$

$= 0.5\ kJ^{-1}$

Q.82 (3)
$\Delta ng > 0, \Delta S > 0$.

Q.83 (3)

$T = \frac{\Delta H}{\Delta S}$ (at eq $\Delta G = 0$)

$T = \frac{178.3 \times 1000}{160} = 1114$.

Q.84 (4)
Work is not thermodynamic property of system.

Q.85 (3)
$\Delta G = \Delta H - T\Delta S$

$= 150 - \frac{300 \times 10}{1000}$

$= 147$ kJ.

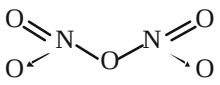
SECTION-B

Q.86 (2)
N_2O_4

Q.87 (2)
B_2 has only π bond.
$\sigma 1s^2$ σ^*1s^2 $\sigma 2s^2$ σ^*2s^2 πpx^1
$= \pi py^1$

Q.88 (4)
Size ↑ repulsion ↑ B.A. ↑

Q.89 (4)



Q.90 (3)
Along the x-axis.

Q.91 (3)
SiF_4 is tetrahedral symmetric in nature has O dipole moment.

Q.92 (3)
N_2 charges into N_2^-
bond order decreases while bond energy decreases and magnetic property is charge from diamagnetic to para magnetic.

Q.93 (1)
(A) $ClF_3 \rightarrow$ has T- shaped
(B) $PCl_5 \rightarrow$ has Trigonal bipyramidal
(C) $IF_5 \rightarrow$ has Spuare pyramidal
(D) $CCl_4 \rightarrow$ has tetrahedral
(E) $XeF_4 \rightarrow$ Square planar

Q.94 (2)
SF_4 see-saw geometry.

Q.95 (2)
CO_2 is molecular solid.

Q.96 (1)
Entropy

Q.97 (1)
$C(s) + 2\,H_2(g) \longrightarrow CH_4(g)$
$\Delta H = \Sigma(\Delta H_C)_{Reactant} - \Sigma(\Delta H_C)_{Product}$
$= [(-349) + (-241.8) \times 2] = -[-906.7] = 74.1$

Q.98 (1)
$\Delta G = \Delta H - T\Delta S$

Q.99 (1)
Intensive pressure
Extensive volume
temperature density

Q.100 (2)
Both (A) and (R) are true and (R) is not the correct explanation of (A)

BIOLOGY-I

Q.101 (2)
Q.102 (2)
Q.103 (3)
Q.104 (1)
Q.105 (4)
Thorns can be seen in Citrus or Bougainvillea.
Spines are modification of leaves.

Q.106 (1)
Root hairs arise from epidermal cells of maturation zone.

Q.107 (2)
Q.108 (1)
Q.109 (3)
Q.110 (1)
Q.111 (3)
Q.112 (2)
Q.113 (3)
Q.114 (1)
Q.115 (2)
Q.116 (4)
Q.117 (3)
Q.118 (1)
Q.119 (4)
Q.120 (3)
Option (3) contains the mismatched pair and can be corrected as
Roots arising from the radicle do not form stilt roots, which arc a modification of adventitious root system
Roots arising from any part of the plant other than the radicle are called adyentitious roots. These roots can be

Q.121 (2)
Q.122 (4)
Q.123 (4)
Statement in option (4) is incorrect and can be corrected as
A flower is a modified shoot where in the shoot apical mcristem changes to floral meristem. Intemodes do not elongate and the axis gets condensed. The apex produces different kinds of floral appendages laterally at successive nodes instead of leaves.

Q.124 (1)
Q.125 (1)
Q.126 (3)
Blast refers to formative ability of cell.
Chondroblasts are cartilage forming cells while fibroblasts are fibre secreting cells.

Q.127 (3)
Q.128 (3)
Q.129 (4)
Q.130 (3)
Q.131 (4)
Q.132 (2)
Compound epithelium is made up of more than one layer of cells and thus has a limited role in secretion and absorption.

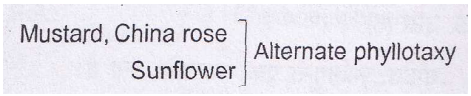
Q.133 (2)
Q.134 (2)
Q.135 (3)

SECTION-B

Q.136 (4)
Q.137 (4)
Q.138 (1)
Q.139 (4)
Q.140 (1)
Q.141 (2)
Both Assertion and Reason are correct, but Reason is not the correct explanation of Assertion.
Leaf base is the lowermost part of the leaf by which the leaf is joined to the node of the stem. It protects the young axillary bud.
The leaf base becomes swollen due to the deposition of sugar. In many legumes, leaf base is swollen. The swollen leaf base is known as puivinus. It is responsible for sleep and shock movements of certain leaves, e.g. Mimosa pudica and.Cassia.

Q.142 (1)
Q.143 (3)
Papilionaceous corolla shows vexillary aestivation.
Mango is a drupe. Vexillum is largest posterior petal in pea also called standard petal.

Q.144 (1)
In opposite phyllotaxy, a pair of leaves arise at each node opposite to each other.
Guava, Calotropis have opposite phyllotaxy.



Alstonia, Nerium] Whorled phyllotaxy.

Q.145 (1)
Q.146 (2)
Q.147 (2)
Q.148 (4)
Q.149 (1)
Cube-like cells are found in PCT of nephron
Cuboidal epithelium is composed of a single layer of cube-like cells. Columnar epithelium is composed of a single layer of tall and slender cells.

Q.150 (4)
Hint : Orientation of fibres show a regular pattern
Sol. : Areolar tissue is an example of loose connective tissue. Blood is a fluid connective tissue. Blood, bone and cartilage are specialized connective tissues.
Tendon and ligament are dense regular connective tissues.

BIOLOGY-II
SECTION-A

Q.151 (1)
Q.152 (2)
Q.153 (4)
Phloem in gymnosperms lacks both sieve tube and companion cells. Gymosperms have albuminous cells and sieve cells.

Q.154 (1)
Q.155 (2)
Q.156 (2)
Monocots have isobilateral leaves.
Isobilateral leaves possess chloroplast in mesophyll cells and guard cells of stomata.
All cells of epidermis do not possess chloroplast.

Q.157 (2)
Bulliform cells are found in some grasses.
Bulliform cells are modified adaxial epidermal cells which help to prevent water loss.

Q.158 (3)
Collenchyma is a living mechanical tissue, having no intercellular spaces.

Q.159 (4)
Mesophyll tissue of dicot leaves is differentiated as phlisade parenchyma and spongy parenchyma.

Q.160 (2)
Q.161 (1)
Q.162 (1)
Q.163 (3)
Cortex is the region found between epidermis and stele. All tissues on the inner side of the endodermis such as pericycle, vascular bundles and pith constitute the stele.

Q.164 (3)
Q.165 (1)
Q.166 (2)
Q.167 (3)
Q.168 (3)
Ground tissue system of leaves consists of thin-walled cbloroplast containing cells called mesophyll cells. Mesophyll cells are made up of two types of cells, i.e. palisade and spongy.

Q.169 (3)
Q.170 (3)
Q.171 (2)
Q.172 (3)
These are unicellular elongation of a root epidermis.

Q.173 (2)
The meristem (continuously dividing cells) which occurs between mature tissues is known as intercalary meristem. They occur in grasses.

Q.174 (1)
Q.175 (4)
Q.176 (3)
Location of elastic cartilage
Elastic cartilage is present in the tip of nose, outer ear joints, etc.

Q.177 (1)
Q.178 (4)
Q.179 (3)
In frogs, digestion of the food takes place by the action of HC1 and gastric juices secreted from the walls of the stomach. Then, the partially digested food is passed from the stomach to the first part of intestine.

Q.180 (3)
Q.181 (1)
Q.182 (4)
Q.183 (4)
Q.184 (4)
Q.185 (3)

SECTION-B

Q.186 (3)
Q.187 (1)
Usually, more than 6 xylem bundles are found in monocot roots.
• Secondary growth is absent in monocots so pericycle does not form vascular cambium.
• 2-4 xylem and phloem patches along with poorly developed pith are seen in dicot roots.
• Epiblema is root epidermis found in both monocot and dicot plants.

Q.188 (1)
Q.189 (2)
Q.190 (3)
Q.191 (3)
Q.192 (2)
Q.193 (1)
Q.194 (4)
Q.195 (2)
Q.196 (1)
Frog exhibit sexual dimorphism. Male frog can be distinguished by the presence of sound producing vocal sacs and also a copulatory pad on the first digit of the forelimbs which are absent in the female frogs

Q.197 (4)
Q.198 (3)
Q.199 (2)
The colour of the ventral side of the skin of frog is pale yellow

Q.200 (1)
Compound epithelium being multilayered provides protection against mechanical and chemical stresses.