SOLUTIONS

Mentors Eduserv

All India Test Series 2018

Unit Test-1

AIPMT PATTERN

Test Date: 12-08-2017

Mentors Eduserv: Plot No.-136/137, Parus Lok Complex, Boring Road Crossing,
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PHYSICS

1. **(4)**

Force = mass × acceleration

$\Rightarrow$ [Mass]

$$= \left[\frac{\text{force}}{\text{acceleration}}\right] = \left[\frac{\text{force}}{\text{velocity / time}}\right] = [FV^{-1}T]$$

2. **(2)**

Let surface tension

$s = E^a V^b T^c$

$$\frac{MLT^{-2}}{L} = (ML^2T^{-2})^a \left(\frac{L}{T}\right)^b (T)^c$$

Equating the dimension of LHS and RHS

$$ML^0T^{-2} = M^0L^{2a+b}T^{-2a-b+c}$$

$$\Rightarrow\ a = 1, 2a + b = 0,\ -2a - b + c = -2$$

$$\Rightarrow\ a = 1, b = -2, c = -2$$

Hence, the dimensions of surface tension are $[E\ V^{-2}\ T^{-2}]$

3. **(1)**

According to question,

$V(x) = bx^{-2n}$

So, $\dfrac{dv}{dx} = -2nbx^{-2n-1}$

Acceleration of the particle as function of x,

$$a = v\frac{dv}{dx} = bx^{-2n}\left\{b(-2n)x^{-2n-1}\right\} = -2nb^2x^{-4n-1}$$

4. **(2)**

$$y = \frac{Fl}{xA} = \frac{1 \times 9.8 \times 2}{(0.8 \times 10^{-3}) \times \pi\left(\dfrac{0.4 \times 10^{-3}}{2}\right)^2}$$

$$= 1.94 \times 10^{11}\ N/m^2 = 2.0 \times 10^{11}\ N/m^2$$

$$\frac{\Delta Y}{Y} = \frac{\Delta x}{x} + \frac{\Delta A}{A} = \frac{\Delta x}{x} + 2\frac{\Delta d}{d}$$

$$= \frac{0.05}{0.8} + \frac{2(0.01)}{0.4} = 0.1125$$

$$\Rightarrow\ \Delta Y = (0.1125)Y$$

$$= 0.1125 \times 1.94 \times 10^{11}$$

$$= 0.2185 \times 10^{11} = 0.2 \times 10^{11}$$

5. **(4)**

$$\frac{\Delta g}{g}=\frac{\Delta l}{l}+2\frac{\Delta T}{nT}$$

ΔT is least and n is maximum, hence error will be least in this case

6. **(3)**

Let $v^x = kg^y\lambda^z\rho^\delta$. Now by substituting the dimensinos of each quantities and equating the powers of M, L, and T, we get $\delta = 0$ and x = 2, y = 1, z = 1

7. **(4)**

$$\rho=\frac{m}{v}=\frac{m}{\pi r^2 l} \Rightarrow \frac{\Delta\rho}{\rho}=\frac{\Delta m}{m}+2\frac{\Delta r}{r}+\frac{\Delta l}{l}$$

$$\Rightarrow \frac{\Delta\rho}{\rho}\times 100=\left(\frac{0.003}{0.3}+2\times\frac{0.005}{0.5}+\frac{0.06}{6}\right)\times 100$$

= 4%

8. **(3)**

Volume of sphere $(V)=\frac{4}{3}\pi r^2\%$ error in volume

$$=3\times\frac{\Delta r}{r}\times 100=\left(3\times\frac{0.1}{5.3}\right)\times 100$$

9. **(3)**

From the principle of dimensional homogenity

$$[v]=[at]\Rightarrow\left[LT^{-2}\right]$$

Similarly, [b] = [L] and [c] = [T]

10. **(1)**

By the principle of dimensional homogenity

$$[P]=\left[\frac{a}{V^2}\right] \Rightarrow [a]=[P]\times[V^2]$$

$$=[ML^{-1}T^{-2}][L^6]=[ML^5T^{-2}]$$

11. **(2)**

$$\ell_{\text{effective}}=\ell=\ell_0+r$$

$$\Rightarrow \qquad \ell=101.4+\frac{2.64}{2}$$

$\Rightarrow \quad \ell = 101.4 + 1.32$

$\ell \quad \ell = 102.72\,\text{cm}$

Since, in addition the least number of decimal figures which occur among the added quantities is to be taken. Here the number of least decimal figure in the length is 1, hence

$\ell = 102.7\,\text{cm}$

12. (4)

$R_S = R_1 + R_2 = 16\,\Omega$

$R_P = \dfrac{R_1R_2}{R_1 + R_2} = \dfrac{R_1R_2}{R_S} = 3\,\Omega$

$\Delta R_S = \Delta R_1 + \Delta R_2 = 1\Omega$

$\Rightarrow \dfrac{\Delta R_S}{R_S} \times 100 = \dfrac{1}{16} \times 100\%$

$\Rightarrow \dfrac{\Delta R_S}{R_S} \times 100 = 6.25\%$

$\Rightarrow R_S = 16\Omega \pm 6.25\%$

Similarly

$R_P = \dfrac{R_1R_2}{R_S}$

$\Rightarrow \dfrac{\Delta R_P}{R_P} \times \dfrac{\Delta R_1}{R_1} + \dfrac{\Delta R_2}{R_2} + \dfrac{\Delta R_S}{R_S}$

$\Rightarrow \dfrac{\Delta R_P}{R_P} = \dfrac{0.5}{4} + \dfrac{0.5}{12} + \dfrac{1}{16}$

$\Rightarrow \dfrac{\Delta R_P}{R_P} = 0.23 \quad \Rightarrow \quad \dfrac{\Delta R_P}{R_P} \times 100 = 23\%$

$\Rightarrow R_P = 3\ \Omega \pm 23\%$

13. (1)

14. (1)

$R_0 = \dfrac{V_0}{I_0} = \dfrac{8}{2} = 4\,\Omega$

$\dfrac{\Delta R}{R} = \dfrac{\Delta V}{V} + \dfrac{\Delta I}{V}$

$\Rightarrow \dfrac{\Delta R}{R} = \dfrac{0.5}{8} + \dfrac{0.2}{2} \quad \Rightarrow \quad \dfrac{\Delta R}{R} = 0.1625$

$\Rightarrow R = 4\Omega \pm 16.25\%$

15. (1)

$$\text{Flux} = \phi = BA$$

$$\Rightarrow\ \phi = \left(\frac{F}{qv}\right)A \ \Rightarrow\ [\phi] = \frac{MLT^{-2}}{QLT^{-1}}L^2$$

$$\Rightarrow [\phi] = ML^2T^{-1}Q^{-1}$$

16. (3)

Here, $f = f_0\left(1-\frac{t}{T}\right)$ or, $\frac{dv}{dt} = f_0\left(1-\frac{t}{T}\right)$

or, $dv = f_0\left(1-\frac{t}{T}\right)dt$

$$\therefore\ v = \int dv = \int\left[f_0\left(1-\frac{t}{T}\right)\right]dt$$

or, $v = f_0\left(t-\frac{t^2}{2T}\right)+C$

where C is the constant of integration.

At t = 0, v = 0

$$\therefore\ 0 = f_0\left(0-\frac{0}{2T}\right)+C \Rightarrow C = 0$$

$$\therefore\ v = f_0\left(t-\frac{t^2}{2T}\right)$$

If f = 0, then

$$0 = f_0\left(1-\frac{t}{T}\right) \Rightarrow t = T$$

Hence, particle's velocity in the time interval t = 0 and t = T is given by

$$v_x = \int_{t=0}^{t=T} dv = \int_{t=0}^{T}\left[f_0\left(1-\frac{t}{T}\right)\right]dt$$

$$= f_0\left[\left(t-\frac{t^2}{2T}\right)\right]_0^T = f_0\left(T-\frac{T^2}{2T}\right) = f_0\left(T-\frac{T}{2}\right)$$

$$= \frac{1}{2}f_0T$$

17. (2)

$$s = at^2 - bt^3$$

$$v = \frac{ds}{dt} = 2at - 3bt^2$$

$$a = \frac{dv}{dt} = 2a - 6bt$$

$$2a - 6bt = 0 \Rightarrow t = \frac{a}{3b}$$

18. (1)

Speed $v = \frac{dx}{dt} = \frac{d}{dt}(9t^2 - t^3) = 18t - 3t^2$

$$\frac{dv}{dt} = 0 \Rightarrow 18 - 6t = 0 \Rightarrow t = 3$$

$$\Rightarrow x_{max} = 81 - 27 = 54$$

19. (2)

$$x = 40 + 12t - t^3 \quad \Rightarrow \quad v = \frac{dx}{dt} = 12 - 3t^2$$

$$v = 0;\ t = \sqrt{\frac{12}{3}} = 2\,\text{sec}$$

So, after 2 seconds velocity becomes zero

Value of x in 2 secs = $40 + 12 \times 2 - 2^3$

= 40 + 24 – 8 = 56 m

20. (3)

$$\because t = \sqrt{x} + 3$$

$$\Rightarrow \sqrt{x} = t - 3 \Rightarrow x = (t-3)^2$$

$$v = \frac{dx}{dt} = 2(t-3) = 0 \quad \Rightarrow t = 3$$

$$\therefore x = (3-3)^2 \quad \Rightarrow x = 0$$

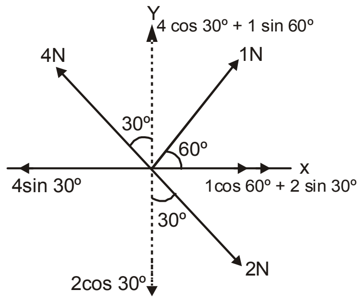
21. (2)

Note that $(\vec{B} \times \vec{A}) \perp \vec{A}$. Hence their dot product is zero

22. (1)

The componets of 1 N and 2 N forces along + x axis = 1 cos 60º + 2 sin 30º

$$= 1 \times \frac{1}{2} + 2 \times \frac{1}{2} = \frac{1}{2} + 1 = \frac{3}{2} = 1.5\text{N}$$



The component of 4 N force along –x axis

$$= 4\sin 30^\circ = 4 \times \frac{1}{2} = 2\text{N}$$

Therefore, if a force of 0.5 N is applied along +x-axis, the resultant force along x-axis will become zero and the resultant force will be obtained only along y-axis.

23. (4)

$$3t = \sqrt{3x} + 6$$

$$\Rightarrow \quad \sqrt{3x} = (3t - 6)$$

$$\Rightarrow \quad 3x = (3t-6)^2 \Rightarrow x = 3t^2 - 12t + 12$$

$$\therefore \quad v = \frac{dx}{dt} = \frac{d}{dt}(3t^2 - 12t + 12) = 6t - 12$$

If velocity = 0, then $6t - 12 = 0 \Rightarrow t = 2s$

Hence, at t = 2

$$x = 3(2)^2 - 12(2) + 12 = 0\text{m}$$

24. (1)

Differentiating time with respect to distance

$$\frac{dt}{dx} = 2\alpha x + \beta$$

$$\Rightarrow \quad v = \frac{dx}{dt} = \frac{1}{2\alpha x + \beta}$$

So, acceleration (a) $= \dfrac{dv}{dt} = \dfrac{dv}{dx}.\dfrac{dx}{dt}$

$$= v\frac{dv}{dx} = \frac{-v.2\alpha}{(2\alpha x + \beta)^2} = -2\alpha.v.v^2 = -2\alpha v^3$$

25. (3)

$$\int_{v_1}^{v_2} dv = \int_{t_1}^{t_2} a\,dt = \int_{t_1}^{t_2} (bt)dt$$

$$\Rightarrow \quad v_2 - v_1 = \left(\frac{bt^2}{2}\right)_{t_1}^{t_2}$$

$$\Rightarrow \quad v_2 = v_1 + \left(\frac{bt^2}{2}\right)_0^t = v_0 + \frac{bt^2}{2}$$

$$\Rightarrow \quad S = \int v_0 dt + \int \frac{bt^2}{2} dt = v_0 t + \frac{1}{6} bt^3$$

26. (2)

$$\int_{6.25}^{0} \frac{dv}{\sqrt{v}} = -2.5\int_0^t dt \;\Rightarrow\; \left|2\sqrt{v}\right|_{6.25}^{0} = -2.5t$$

$$\Rightarrow\; 2\sqrt{6.25} = 2.5t \;\Rightarrow\; t = 2\text{ s}$$

27. (2)

Note that the angle between two forces is 120º and not 60º.

$R^2 = F^2 + F^2 + 2F^2 \cos 120º$

$$= 2F^2 + 2F^2\left(-\frac{1}{2}\right)F^2$$

or $R = F$

28. (1)

$$A_1 = 2, A_2 = 3, |\vec{A}_1 + \vec{A}_2| = 3$$

$$\Rightarrow \quad |\vec{A}_1 + \vec{A}_2|^2 = 9$$

$$\Rightarrow \quad A_1^2 + A_2^2 + 2\vec{A}_1.\vec{A}_2 = 9$$

$$\Rightarrow \quad 2^2 + 3^2 + 2\vec{A}_1.\vec{A}_2 = 9 \;\Rightarrow\; \vec{A}_1.\vec{A}_2 = -2$$

Now,

$$(\vec{A}_1 + 2\vec{A}_2).(3\vec{A}_1 - 4\vec{A}_2) = 3A_1^2 - 8A_2^2 + 2\vec{A}_1.\vec{A}_2$$

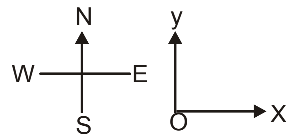
$$= 3(2)^2 - 8(3)^2 + 2(-2) = -64$$

29. (2)

Area of parallelogram : $|\vec{A}\times\vec{B}|$

= AB/2 (given)

$\Rightarrow$ AB $\sin\theta = AB/2$



$\Rightarrow \sin\theta = 1/2 \Rightarrow \theta = 30°$

30. (3)

Let the third side be

$\vec{C}$, then $|\vec{C}| = |\vec{A}+\vec{B}|$ or $|\vec{C}| = |\vec{A}+\vec{B}|$

31. (2)

$\cos\beta = \frac{R}{B} = \frac{1}{2} \Rightarrow \beta = 60°$

Angle between $\vec{A}$ and $\vec{B} = 90° + \beta = 150°$

32. (4)

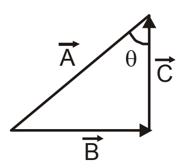
For the resultant of some vectors to be zero, they should form a closed figure taken in the same order.

33. (2)

Here the angle between two vectors of equal magnitude is 120. So resultant has the same magnitude as either of the given vectors. Moreover, it is mid-way between the two vectors, i.e., it is along x-axis.

34. (1)

$\cos\theta = \frac{C}{A} = \frac{3}{5}$ or $\theta = \cos^{-1}\left(\frac{3}{5}\right)$



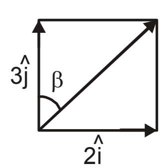
35. (2)

Clearly, $\vec{B}$ should be either in the second quadrant or the fourth quadrant. In none of the given options, we have $-\hat{i}$ term. So the second quadrant is ruled out. Also $\vec{B}$ should make an angle of $90° - \theta$ with the x-axis. So, B should be

$\vec{B}\cos(90° - \theta)\hat{i} - B\sin(90° - \theta)\hat{j} = B\sin\theta\hat{i} - B\ \cos\theta\hat{j}$.

36. (3)

$\tan\beta = \frac{2}{3}$ or $\beta = \tan^{-1}\left(\frac{2}{3}\right)$



37. (2)

$a^2 + b^2 + 2ab\cos\theta = a^2 + b^2 - 2ab\cos\theta$

or $4ab\cos\theta = 0$

But $4ab \neq 0 \Rightarrow \cos\theta = 0$ or $\theta = 90°$

Aliter

$(\vec{a}+\vec{b})$ and $(\vec{a}-\vec{b})$ are the diagonals of a parallelogram whose adjajcjent sides are $\vec{a}$ and $\vec{b}$

Since $|\vec{a}+\vec{b}| = |\vec{a}-\vec{b}|$, the two diagonals of a parallelogram are equal. So, think of rectangle. This leads to $\theta = 90°$

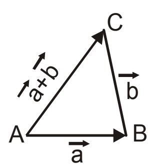
38. (1)

Let that vector be $\vec{C}$. Then

$$\vec{C} = C\hat{C} = b\hat{a} \Rightarrow \vec{C} = \frac{b\vec{a}}{a} = \frac{5}{\sqrt{2}}(\hat{i} - \hat{j})$$

39. (2)

$AC \leq AB + BC \Rightarrow |\vec{a}+\vec{b}| \leq |\vec{a}| + |\vec{b}|$

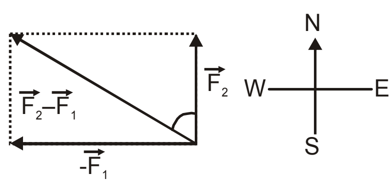


40. (3)

$\overline{OC}$ and $\overline{OA}$ are equal in magnitude and inclined to each other at an angle of 90°. So their resultant is $\sqrt{2}\ r$. It acts mid-way between $\overline{OC}$ and $\overline{OA}$, i.e., along OB

Now, both r and $\sqrt{2}\ r$ are along the same line and in the same direction

Resultant $= r + \sqrt{2r} = r(1+\sqrt{2})$

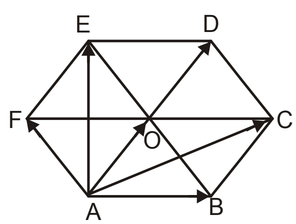


41. (3)

$\overrightarrow{AB} + \overrightarrow{AF} = \overrightarrow{AO} \Rightarrow \overrightarrow{AB} = \overrightarrow{AO} - \overrightarrow{AF}$

$\overrightarrow{AC} = \overrightarrow{AB} + \overrightarrow{AO}.\overrightarrow{AD} = 2\overrightarrow{AO}.\overrightarrow{AE} = \overrightarrow{AO} + \overrightarrow{AF}$

Now, $\overrightarrow{AB} + \overrightarrow{AC} + \overrightarrow{AD} + \overrightarrow{AE} + \overrightarrow{AF}$

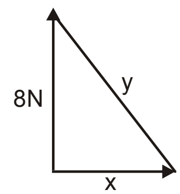


$= 5\overrightarrow{AO} + \overrightarrow{AB} + \overrightarrow{AF} = 5\overrightarrow{AO} + \overrightarrow{AO} = 6\overrightarrow{AO}$

42. **(3)**

x + y = 16

Also, $y^2 = 8^2 + x^2$



or $y^2 = 64 + (16 - y)^2$ $[\because x = 16 - y]$

or $y^2 = 64 + 256 + y^2 - 32y$

or $32y = 320$ or $y = 10$ N

$\therefore$ $x + 10 = 16$ or $x = 6$ N

43. **(1)**

$$\vec{A} \times \vec{B} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 2 & p & q \\ 5 & 7 & 3 \end{vmatrix} = 0$$

or $\hat{i}(3p - 7q) + \hat{j}(5q - 6) + \hat{k}(14 - 5p) = 0$

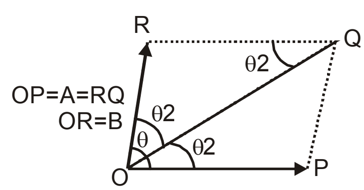
$$3p = 7q.5q - 6 = 0 \text{ or } q = \frac{6}{5}$$

44. **(3)**

$\angle ROQ = \theta/2, \angle RQO = \theta/2$

Hence, ΔOQR is isosceles.

$\Rightarrow OR = RQ \Rightarrow B = A$



Analytically :

$$\tan(\theta/2) = \frac{B\sin\theta}{A + B\cos\theta}$$

$$\Rightarrow \frac{\sin(\theta/2)}{\cos(\theta/2)} = \frac{2B\sin(\theta/2)\cos(\theta/2)}{A + B[2\cos^2(\theta/2) - 1]}$$

$$\Rightarrow A + 2B\cos^2(\theta/2) - B = 2\cos^2(\theta/2) \Rightarrow A = B$$

45. **(2)**

For the resultant of two vectors to be zero, they should be equal and opposite.

CHEMISTRY

46. (1)

Here benzene is Parent chain cyclohexyl is substituent.

47. (2)

48. (3)

It is an ester

49. (4)

It is an ester

50. (4)

Here, ring is substituent.

51. (3)

Here OH is main functional group.

52. (1)

Here Parent chain includes acid & C = C.

53. (3)

Here one NH_2 is substituent.

54. (4)

$$\underset{1}{C}H_2 = \underset{2}{C}H - \underset{3}{C}H - CH_2 - CH_3$$
$$\qquad\qquad\quad | $$
$$\qquad\qquad \underset{4}{C}H_2 - \underset{5}{C}H_2 - \underset{6}{C}H_3$$

3-Ethyl-hex-1-ene

55. (4)

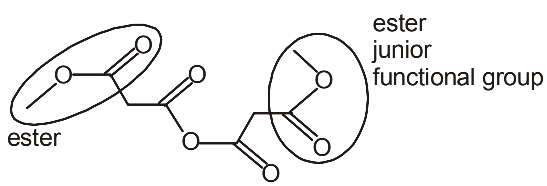
Here acid is main functional group while ketone is junior.

56. (4)

57. (4)

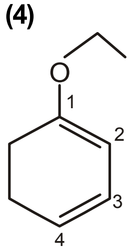
Here OH is junior functional group while, ketone is senior.

58. (4)



It is anhydride having ester group as junior functional group

59. (4)



Here numbering starts from that carbon of C = C where, OH is attached.

60. (3)

Here $-OCH_3$ is substituent.

61. (2)

100g of coal contain 1g of sulphur.

$2\times10^6\times1000$g of coal contains

$$\frac{2\times10^6\times1000}{100}=2\times10^7 \text{ g of sulphur}$$

62. (4)

The reaction show that 2 moles of Al react with moles of O_2 to produce 1mole of Al_2O_3.

63. (2)

$$C+O_2 \longrightarrow CO_2$$

12g of carbon gives 22.4 litres of CO_2

$\therefore$ 11.2 litres of CO_2 is given by 6g of C

The unburnt carbon is 10–6=4g

64. (1)

$$\frac{2.65\times10^{22}}{6\times10^{23}}=0.0442 \text{ mole}$$

$$\text{Mole ratio}=\frac{0.0887}{0.0442}:\frac{0.0442}{0.0442}:\frac{0.132}{0.0442}=2:1:3$$

$\therefore$ The empirical formula = Na_2CO_3

65. (4)

Iodine present in 2.5 is 0.025gm

167g of KI contain 6×10^{23} iodine ions

0.025g of KI-----?

$$\frac{0.025\times6\times10^{23}}{167}=9.03\times10^{19}$$

66. (2)

$$\underset{1\text{ mole}}{Pb(NO_3)}+\underset{2\text{ moles}}{2KIO_3}\rightarrow Pb(IO_3)_2+2KNO_3$$

1 mole of KIO_3 reacts with 0.5 mole of $Pb(NO_3)_2$.So 0.3 mol of $Pb(NO_3)_2$ left behind and 0.5 mol of $Pb(IO_3)_2$ is formed. Hence the ratio is 5/3.

67. (2)

$$\underset{80}{2NaOH}+\underset{1\text{ mole}}{CO_2}\rightarrow Na_2CO_3+H_2O$$

The no. of moles of CO_2 in the mixture is 0.25. Since it reacts with only 20g of NaOH. So, the No. of moles of CO is 0.75. It is converted into CO_2 and requires 60g of NaOH for the same.

68. (4)

$$MgCO_3 \rightarrow MgO + CO_2$$

84g = 1 mole

$\therefore$ 10g of $MgCO_3$ contain 8.4g

Hence, percentage purity of $MgCO_3$=84.

69. (2)

According to the equation, 60g of urea react with 80g of NaOH giving 34g of ammonia. So, 6g of urea can give 3.4g of NH_3. But the percent yield is only 80%

$$\frac{3.4 \times 80}{100} = 2.72g$$

70. (4)

No. of carbon atoms in cortisone = 21 Wt. of 21C atoms = 21×12=252

69.98g of carbon in 100g of cartisone 252g of carbon contain in

$$\frac{252 \times 100}{69.98} = 360.1$$

71. (1)

72. (1)

73. (1)

Initial no. of moles of CO_2

$$= \frac{200 \times 10^{-3}}{44} = 4.545 \times 10^{-3}$$

74. (1)

$$\underset{\substack{2\text{ moles} \\ 100\text{ mL}}}{2PH_3} \longrightarrow 2P + \underset{\substack{3\text{ moles} \\ 150\text{ mL}}}{3H_2}$$

Increase in volume = 150 – 100 = 50 mL

75. (2)

Weight of metal oxide = 3.6g

Weight of metal = 3.2 g

Weight of oxygen = 0.4 g

Element	Relative No. of atoms	Simple ratio
Metal	$3.2/64 = 1/20$	2
Oxygen	$0.4/16 = 1/40$	1

$\therefore$ Formula of the compound = MnO

INORGANIC

76. (3)

$1s^2,2s^22p^2,3s^1$ (Excited state)

77. **(2)**

78. **(3)**

Due to diagonal relationship radius of Li^{+} is close to Mg^{2+} ion.

79. **(3)** **80.** **(2)**

81. **(4)** **82.** **(1)**

83. **(1)**

Correct order of electron affinity is :

Cl > F > S > O

84. **(1)**

Nitrogen has stable $2p^3$ configuration and also due to high e^- charge density at outermost orbit it requires energy to add one extra e^- in its outer most shell i.e., its first electron gain enthalpy is positive.

85. **(4)**

According to Allred and Rochow scale

(C) $EN_{(AR)} = 0.359\frac{Z_{eff}}{r} + 0.744$ (r : radius in Å)

86. **(3)** **87.** **(1)**

88. **(4)** **89.** **(4)**

90. **(1)**

Oxidation state of non-metal increase acidc nature of oxide increase $\overset{+7}{Cl_2}O_7$ is most acidc.

BOTANY

91. **(1)**

Leeuwenhoek is credited for discovery of first living cell.

92. **(2)** **93.** **(3)** **94.** **(4)** **95.** **(2)** **96.** **(3)**

97. **(4)**

98. **(2)**

PPLO, BGA and bacteria all belongs to prokaryote.

99. **(2)**

100. **(1)**

Resistance to antibiotics is provided by plasmid i.e. small circular DNA.

101. **(3)**

102. **(2)**

Infolding of membranes can be mesosome, cristae, etc. Found in eukaryotes and prokaryotes both.

103. **(2)**

3–layered cell envelope function as single protective unit in bacteria i.e. glycocalyx, cell membrane & cell wall.

104. (1)

Cell membrane of prokaryotes is structurally similar to eukaryotes. Mesosome is infolding of cell membrane.

105. (4)

Prokaryotes – Mycoplasma, BGA, Methanogens, BGA, PPLO.

Eukaryotes – yeast, Rhizopus.

Mesokaryotes – Dinoflagellates

106. (2) 107. (3) 108. (3) 109. (2) 110. (1)

111. (1)

Euglena, Mycoplasma & Protozoan cells lack cell wall.

112. (4)

RER shows attachment with 60S ribosomal sub unit

113. (3)

Given figure represents G.B in which cis & trans face is entirely different.

114. (2) 115. (1)

116. (3)

Oxysome only particepates in oxidative phosphorylation.

117. (3)

118. (1)

Plastids have been classified on the basis of pigments.

119. (4) 120. (4)

121. (2)

60S, 40S, 50S, & 30S are sedimentation cofficients of ribosomal subunits.

122. (2) 123. (2) 124. (2) 125. (1) 126. (2)

127. (1) 128. (2) 129. (4)

130. (2)

Larger and more numeraus nucleoli can be observed in the cell with active protein synthesis.

131. (3) 132. (3) 133. (2)

134. (2)

“yolk nuclei” are mitochondria found in egg cell.

135. (3)

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136. (1) 137. (3)

138. (4)

Collagen is a protein forms white fibres in tissue.

139. (4)

140. (1)

Adipose bears relatively large space between cells

141. (1) 142. (1) 143. (1) 144. (3) 145. (1)

146. (2)

147. (3)

Osteoblasts are main matrix forming cells of bones.

148. (3)

Blood plasma is matrix of blood, doesnot contain collagen.

149. (3) 150. (2) 151. (1)

152. (3)

Tendons connect muscles to bone

153. (2) 154. (3) 155. (1) 156. (2) 157. (3)

158. (2) 159. (2)

160. (2)

Intercalated discs are gap junctions present in cardiac muscles

161. (4)

Neuroglial cells are component nervous tissue.

162. (3) 163. (1) 164. (4) 165. (4) 166. (4)

167. (1)

Due to accumulation of more lactic acid, striped muscles get fatigue very soon.

168. (4) 169. (2)

170. (2)

Middle covering of muscle is perimycium that covers a muscle foscicle

171. (1) 172. (3) 173. (2) 174. (1) 175. (3)

176. (1) 177. (3) 178. (4) 179. (2) 180. (2)