WEEKLY TEST MEDICAL PLUS -02 TEST - 02 Balliwala
SOLUTION Date 14-07-2019

[CHEMISTRY]

46. (b) The number of electrons in an atom is equal to its atomic number *i.e.* number of protons.

47. (a) No. of protons = Atomic no. = 25 and no. of neutron = 55 – 25 = 30.

48. (a) Na^+ and Ne are isoelectronic which contain 10 electrons.

49. (a) One molecule of CO_2 have 22 electrons.

50. (c) Mass of an atom is due to nucleus (neutron + proton).

51. (c) Most probable radius $= a_0 / Z$
where $a_0 = 52.9$ pm. For helium ion, $Z = 2$.
$r_{mp} = \frac{52.9}{2} = 26.45\ pm.$

52. (c) Na^+ has 10 electron and Li^+ has 2 electron so these are different number of electron from each other.

53. (c) $P_{15} = 2, 8, 5$

54. (c) $^{16}_{8}O^{--}$ have more electrons than neutron $p = 8,\ e = 10,\ n = 8$.

55. (b) $^-CONH_2$ = 6 + 8 + 7 + 2 + 1 (from other atom to form covalent bond) = 24

56. (b) Complete $E.C. = [Ar]^{18}\, 3d^{10}\, 4s^2\, 4p^6$.

57. (c) Neutron in $^{12}_{6}C = 6$, , Neutrons in $^{28}_{14}Si = 14$
Ratio = 6 : 14 = 3 : 7.

58. D

59. (c) $H^- = 1s^2$ and $He^+ = 1s^2$.

60. (a) Number of unpaired electrons in inert gas is zero because they have full filled orbitals.

61. (a) In case of N^{3-}, $p = 7$ and $c = 10$

62. (c) Atomic number of chlorine 17 and in Cl^- ion total no. of electron = 18.

63. C

64. (a) The central part consisting whole of the positive charge and most of the mass caused by nucleus, is extremely small in size compared to the size of the atom.

65. (b) According to the Bohr model atoms or ions contain one electron.

66. (c) α-particles pass through because most part of the atom is empty.

67. (b) An electron jumps from L to K shell energy is released.

68. (b) Both He and Li^+ contain 2 electrons each.

69. D

70. B

71. B

72. A

73. (a) Increases due to absorption of energy and it shows absorption spectra.

74. A

75. (c) Emission spectra of different λ accounts for quantisation of energy.

76. (d) According to de-Broglie $\left(\lambda = \frac{h}{mv}\right)$.

77. (c) $\lambda = \frac{h}{mv} = \frac{6.625 \times 10^{-34}}{0.2\,kg \times \frac{5}{60 \times 60\,ms^{-1}}} = 10^{-30} m$.

78. (a) We know that the correct relationship between wavelength and momentum is $\lambda = \frac{h}{p}$. Which is given by de-Broglie.

79. Charge/mass for n = 0, for $\alpha = \frac{2}{4}$, for $p = \frac{1}{1}$, for $e^- = \frac{1}{1/1837}$

80.

81. A

82. For $Be^{3+} E_\infty - E_2 = +13.6\frac{z^2}{n^2}$

$= 13.6 \times \frac{4^2}{2^2} 54.4$ eV

83. $v \propto \frac{Z}{n}$; $r \propto \frac{n^2}{Z}$;

frequency of revolution $= \frac{v_n}{2\pi r_n}$;

Coulombic force of attraction $= \frac{Ze^2}{(4\pi\varepsilon_0)r^2}$

84. D

85. $\frac{1}{\lambda} = RZ^2\left[\frac{1}{n_1^2} - \frac{1}{n_2^2}\right] = R \times 3^2\left[\frac{1}{1^2} - \frac{1}{2^2}\right]$

$\Rightarrow$ R or $\lambda = \frac{1}{R}$

86. $\frac{1}{\lambda} = RZ^2\left[\frac{1}{n_1^2} - \frac{1}{n_2^2}\right] = R \times 2^2\left[\frac{1}{1^2} - \frac{1}{2^2}\right]$

$\Rightarrow$ 3R; $\lambda = \frac{1}{3R}$

87. B

88. C

89. A

90. D