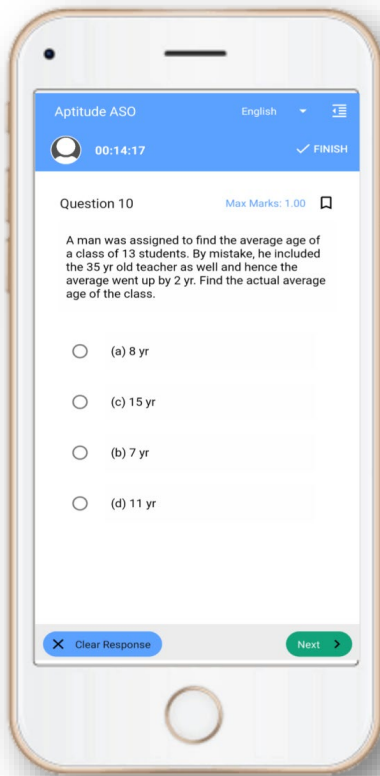


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B - SECTION - III

SCIENCE (PCM)

CHEMISTRY

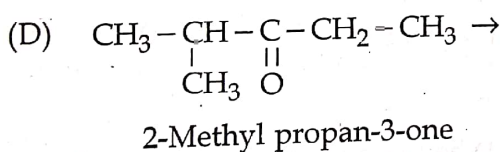
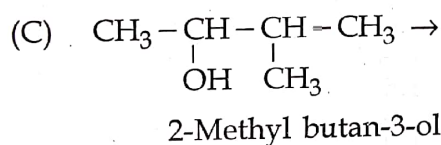
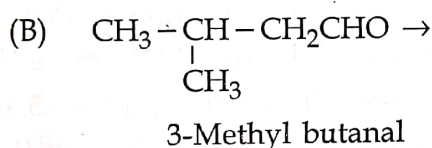
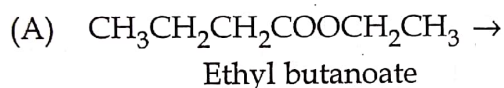
61. In a vessel 4 g of O_2 , 4 g of H_2 , 4 g of N_2 and 4 g of Cl_2 are present. Which of these gases has highest number of atoms ?
- (A) O_2
(B) H_2
(C) N_2
(D) Cl_2
62. Which of the following aqueous solution will have highest elevation of boiling point ?
- (A) 1 M NaOH
(B) 1 M Na_2SO_4
(C) 1 M NH_4NO_3
(D) 1 M KNO_3
63. The quantum numbers n and l for four electrons are given below.
- (i) $n=4, l=1$
(ii) $n=4, l=0$
(iii) $n=3, l=2$
(iv) $n=3, l=1$
- The order of their energy from lowest to highest is :
- (A) (iii) < (i) < (iv) < (ii)
(B) (i) < (ii) < (iii) < (iv)
(C) (ii) < (iv) < (i) < (iii)
(D) (iv) < (ii) < (iii) < (i)
64. When two ice cubes are pressed over each other, they unite to form one cube. Which of the force is responsible to hold them together ?
- (A) Hydrogen bond formation
(B) van der Waal's forces
(C) Covalent attraction
(D) Ionic interaction
65. The volume of carbon dioxide gas at NTP obtained by heating 4.2 g of $MgCO_3$ would be :
- (At. mass of Mg = 24, O = 16, C = 12)
- (A) 22.4 litres
(B) 11.2 litres
(C) 1.12 litres
(D) 2.24 litres
66. The de-Broglie wavelength of a particle of mass 0.001 kg and moving with velocity 100 m/s is given by :
- (A) 6.62×10^{-34} m
(B) 6.62×10^{-33} m
(C) 6.62×10^{-35} m
(D) 6.62×10^{-32} m
67. Nitrogen gas is kept in a 1 litre flask under 100 kPa pressure and oxygen gas is kept in another 3 litre flask under 320 kPa pressure. If the two flasks are connected the resultant pressure of the mixture of gases will be :
- (A) 310 kPa
(B) 210 kPa
(C) 365 kPa
(D) 265 kPa

68. The element having which of the following electronic configuration will have highest ionization energy ?
- (A) $[\text{Ne}] 3s^2 3p^1$
(B) $[\text{Ne}] 3s^2 3p^3$
(C) $[\text{Ne}] 3s^2 3p^2$
(D) $[\text{Ne}] 3s^2 3p^4$
69. The shape of NH_3 molecule and hybridisation of the central atom of NH_3 molecule is :
- (A) Linear and sp
(B) Trigonal planar and sp^2
(C) Pyramidal and sp^3
(D) Tetrahedral and sp^3
70. The outermost electronic configuration of most electronegative elements is :
- (A) $ns^2 np^3$
(B) $ns^2 np^4$
(C) $ns^2 np^6$
(D) $ns^2 np^5$
71. The oxidation number of sulphur in S_8 , S_2F_2 and H_2S respectively are :
- (A) +2, +1, -2
(B) -2, +1, -2
(C) 0, +1, +2
(D) 0, +1, -2
72. Find the concentration of HCl if 10 ml of 0.5 M $\text{Ca}(\text{OH})_2$ solution is required to titrate 50 ml of HCl till the neutralization point.
- (A) 5 M
(B) $\frac{1}{10}$ M
(C) 10 M
(D) $\frac{1}{5}$ M
73. In the reaction $\text{PCl}_5(\text{g}) \rightleftharpoons \text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g})$, the equilibrium concentration of PCl_5 and PCl_3 are 0.4 and 0.2 mole/litre respectively. If the value of K_c is 0.5, what is the concentration of Cl_2 in mole/litre ?
- (A) 2.0
(B) 1.5
(C) 1.0
(D) 0.5
74. When copper pyrite is roasted in excess of air, a mixture of CuO and FeO is formed. FeO is present as impurity. This can be removed as slag during reduction of CuO to Cu . The flux that is added to form the slag is :
- (A) SiO_2 , which is an acidic flux
(B) Limestone, which is a basic flux
(C) SiO_2 , which is a basic flux
(D) CaO , which is a basic flux

75. At 90°C , pure water has $[\text{H}_3\text{O}^+] = 10^{-6}\text{ M}$. What is the value of K_w at this temperature ?

- (A) 10^{-6}
 (B) 10^{-12}
 (C) 10^{-13}
 (D) 10^{-14}

76. The IUPAC name of which of the following compounds is wrong ?

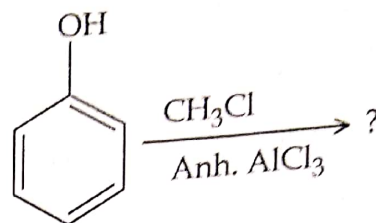


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77. Anti-Markownikoff's addition of HBr in presence of an organic peroxide is not observed in :

- (A) Propene
 (B) But-1-ene
 (C) But-2-ene
 (D) Pent-2-ene

78. What will be the product of the following reaction ?



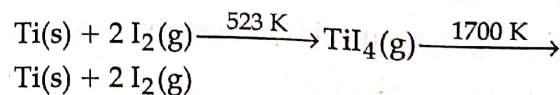
- (A) m-hydroxy toluene
 (B) m-chlorophenol
 (C) o-chlorophenol and p-chlorophenol
 (D) o-hydroxy toluene and p-hydroxy toluene

79. The order of decreasing stability of the following carbanions is :

- (i) $(\text{CH}_3)_3\text{C}^{\ominus}$
 (ii) $(\text{CH}_3)_2\text{CH}^{\ominus}$
 (iii) $\text{CH}_3\text{CH}_2^{\ominus}$
 (iv) $\text{C}_6\text{H}_5\text{CH}_2^{\ominus}$

- (A) (i) > (ii) > (iii) > (iv)
 (B) (iv) > (iii) > (ii) > (i)
 (C) (iv) > (ii) > (i) > (iii)
 (D) (i) > (ii) > (iv) > (iii)

80. Which method of purification is represented by the following equations ?



- (A) Cupellation
 (B) Poling
 (C) Zone refining
 (D) Van Arkel Method