CHEMISTRY

1. The number of radial nodes of a 4p hydrogenic orbital is

A) 0 B) 1 C) 2 D) 3

2. The structure of boron nitride is similar to that of

A) acetylene B) graphite C) phosphine D) sodium chloride

3. The structure of PCl_5 in the vapour state is

A) square pyramidal B) planar pentagonal
C) twisted pentagonal D) trigonal bipyramidal

4. According to valence Bond theory, the hybridisation and magnetism of $[Fe(CN)_6]^{3-}$ are, respectively, (Fe atomic Number = 26)

A) d^2sp^3 paramagnetic B) d^2sp^3 diamagnetic C) sp^2d^3 paramagnetic D) sp^2d^3 diamagnetic

5. For a diffusion controlled reaction

A) RT$\ll$ Ea B) A $\simeq e^{-Ea/RT}$
C) The Arrhenius pre exponential factor (A) is close to zero
D) The activation energy (Ea) is close to zero

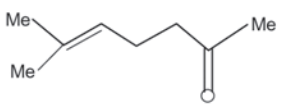
6. The work done when 6.5g of metallic zinc (at. mass 65) is completely dissolved in dilute sulphuric acid in an open beaker at 27°C is

A) 0 J B) 125 J C) 249 J D) 498 J

7. Assuming approximate values of one Faraday as 9.6×10^4C and Avogadro number as 6×10^{23}, the charge of an electron is

A) 5.76×10^{28}C B) 6.25×10^{18} C C) 1.6×10^{-19} C D) 3.2×10^{-18} C

8. The IUPAC name of the compound



is

A) 4 - methyl - 3 - hepten - 2 - one B) 2 - methyl - 2 - hepten - 6 - one
C) 6 - methyl - 5 - hepten - 2 - one D) 4 - methyl - 3 - hepten - 2 - one

9. Benzamide can be converted to bezylamine using

A) Br_2/KOH B) PCl_5 C) $LiAlH_4$ D) $NaBH_4$

10. 1 - methylcyclohexene can be converted to trans - 2 - methylcyclohexanol by

A) hydroboration B) oxymercuration
C) oxidation with alkaline $KMnO_4$ D) oxidation with H_2CrO_4