ENGINEERING CHEMISTRY

MULTIPLE CHOICE QUESTIONS

1. Which of the following have the maximum bond strength:
   (a) O_2 (b) O_2^+ (c) O_2^- (d) O_2^{-2}

2. When N_2 goes to N_2^+, the N–N bond bond distance
   (a) Decreases (b) Increases (c) remains the same (d) None

3. The smallest portion of a crystal which has the structure characteristics of space lattice is called
   (a) Space lattice (b) Unit cell (c) both (d) none of these

4. The number of atoms per unit cell in a simple cube, fcc and bcc arrangement are, respectively:
   (a) 3, 14, 9 (b) 1, 4, 2 (c) 1, 2, 4 (d) 4, 1, 2

5. Graphite is a
   (a) three dimensional solid (b) one dimensional solid (c) two dimensional solid (d) none

6. The dimension of rate constant of a second order reaction involves
   (a) neither time nor conc (b) only time (c) Time and conc (d) Time and square of conc

7. Lattice energy of a solid increases if:
   (a) Ions are large (b) Ions are small (c) no effect of size (d) none

8. For an endothermic reaction, where ΔH represents the enthalpy of the reaction in KJ/mole, the minimum value for the energy of activation will be
   (a) less than ΔH (b) zero (c) more than ΔH (d) equal to ΔH

9. Which of the following Hydrocarbons may be expected to have the highest value for λ_{max}
   (a) Benzene (b) Naphthalene (c) Nitrobenzene (d) Aniline

10. UV spectra for $(CH_3)_2C=CH-CH(CH_3)_2$ will exhibit
    (a) one sharp peak (b) one broad peak (c) two peaks (d) four peaks

11. The polymer used for making contact-lens for eyes is
    (a) Nylon-6 (b) Polyethyl acrylate (c) Polyethene (d) Polymethyl methacrylate

12. Which of the following is used as an initiator in chain growth Polymerisation
    (a) Conc H_2SO_4 (b) Alkali (c) Benzoyl peroxide (d) Hydrogen

13. Which of the following species has a trigonal planar shape
    (a) CH_3^+ (b) $:CH_3^-$ (c) BF_4^- (d) SiF_4

14. meso-Tartaric acid is optically inactive due to the presence of
    (a) two chiral Carbon atoms (b) Molecular unsymmetry (c) external compensation (d) Molecular Symmetry

15. Which of the following is a bio-degradable polymer:
(a) nylon-6 (b) nylon 66 (c) polyethene (d) nylon 2-nylon6

16. Neoprene is a polymer of:
(a) Isoprene (b) Butadiene (c) Chloroprene (d) Acryl nitrile

17. Which of the following is not the constituent of biogas:
(a) CH_4 (b) N_2 (c) CO_2 (d) Cl_2

18. Potable water treatment does not involve:
(a) Demineralisation (b) Disinfection (c) Coagulation (d) sedimentation

19. Calgon is
(a) Name of a scientist (b) Na_3PO_4 (c) NaH_2PO_4 (d) $(NaPO_3)_6$

20. Alkalinity in water cannot be due to the presence of
(a) OH^- and HCO_3^- (b) OH^- only (c) OH^- and CO_3^{--} (d) CO_3^{--} and HCO_3^-

21. Hardness of water is expressed in terms of equivalent of
(a) NaCl (b) NaOH (c) $Ca(OH)_2$ (d) $CaCO_3$

22. The solution whose strength or concentration is to be determined is known as
(a) Titrand (b) Titrant (c) Titration (d) Normal solution

23. In electrochemical corrosion:
(a) Anode undergoes oxidation (b) cathode undergoes oxidation (c) both (d) None of these

24. The standard reduction potential for Fe^{2+}/Fe and Sn^{2+}/Sn electrodes are -0.44 and -0.14 volt respectively. For the cell reaction $Fe^{2+} + Sn \rightarrow Fe + Sn^{2+}$, the E°_{cell} is:
(a) +0.30V (b) −0.58V (c) +0.58V (d) −0.30V

25. An auxochrome group is called
(a) Colour decreasing group (b) colour enhansing group (c) colour changing group (d) none of these

26. How many NMR signals do you expect in CH_3OCH_3
(a) 1 (b) 3 (c) 6 (d) 9

27. In one component system, the maximum degree of freedom will be
(a) 0 (b) 1 (c) 2 (d) 3

28. A vessel contains H_2 and O_2 gases. The number of Phases, degree of freedom and components will be, respectively:
(a) 1, 1, 2 (b) 1, 3, 2 (c) 1, 2, 3 (d) 2, 1, 1

29. A good fuel should possess
(a) High calorific value (b) High ignition temperature (c) Moderate ignition temperature (d) Both (a) and (c)

30. Which of the following compounds cannot have intermolecular hydrogen bonding
(a) C_6H_5COOH (b) CH_3OH (c) $CH_3COOC_2H_5$ (d) $CH_3CH_2NH_2$