

Second Semester

FASHION TECHNOLOGY  
UO7CY204: CHEMISTRY-II

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions:-  
PART A (20 x 1 = 20 Marks)

- Dipole - Induced dipole interactions is possible between  
A. HF and HF      B. HCl and N<sub>2</sub>      C. N<sub>2</sub> and O<sub>2</sub>      D. HCl and SO<sub>2</sub>
- Bond order of nitrogen molecule is  
A. Zero      B. One      C. Two      D. Three
- A suitable example for strong field low spin stable complex is  
A. [Fe (CN)<sub>6</sub>]<sup>4-</sup>      B. [Fe (H<sub>2</sub>O)<sub>6</sub>]<sup>4+</sup>      C. [CoCl<sub>4</sub>]<sup>2-</sup>      D. [FeF<sub>6</sub>]<sup>3-</sup>
- Cisplatin is used in  
A. electroplating      B. quantitative analysis as masking agent  
C. cancer chemotherapy      D. hydrogenation of alkenes as a catalyst
- Monomeric units present in the epoxy resins are  
A. Hexamethylene diamine and Adipic acid  
B. Epichlorohydrin and Bisphenol  
C. Phenol and Formaldehyde  
D. Styrene and Butadiene
- A biopolymer is  
A. Natural Polymer      B. Nylon      C. Nucleic acid      D. Bakelite
- Plexiglass is  
A. PMMA      B. PTFE      C. PVC      D. HDPE
- Thermocole is obtained by blowing air through molten  
A. Polypropylene      B. Polyester  
C. Polyvinyl acetate      D. Polystyrene
- The type of corrosion that occurs when a metal is exposed to varying concentration of air is  
A. Galvanic corrosion      B. Differential aeration  
C. Pitting corrosion      D. Stress corrosion
- The rate of corrosion will be more when  
A. the hydrogen overvoltage is very high  
B. the oxide layer formed initially is non-porous  
C. the cathodic area is larger than the anodic area  
D. the humidity of the air is low
- An example for vapour phase inhibitor is  
A. Benzotriazole      B. Hydrazine      C. Thiourea      D. Heavy metal soaps

12. In paints, the protective glossy film is formed by incorporating  
 A. Pigments      B. Thinners      C. Plasticizers      D. Vehicle
13. The presence of  $O_2$  and  $CO_2$  in boiler feed water may lead to  
 A. Scale and sludge formation      B. Caustic embrittlement  
 C. Boiler corrosion      D. Foaming
14. In internal conditioning of boiler feed water, the calgon used is nothing but  
 A. Sodium carbonate      B. Sodium hexametaphosphate  
 C. Sodium dihydrogen phosphate      D. Calcium sulphate
15. Which of the following may be used as a coagulant to remove sediments from water?  
 A. NaCl      B.  $CaCl_2$       C.  $Na_3PO_4$       D.  $Al_2(SO_4)_3$
16. The most suitable method to disinfect swimming pool water is by  
 A. U.V. method      B. Chlorination      C. adding  $CaOCl_2$       D. Ozone treatment
17. Proximate analysis of coal may not be suitable for the determination of percentage of  
 A. Fixed Carbon      B. Moisture      C. Hydrogen      D. Ash
18. Octane number is highest for  
 A. n-heptane      B. 2-Methylhexane  
 C. Cyclohexane      D. 2, 2, 4-Trimethylpentane
19. Water gas is rich with  
 A.  $CO+H_2$       B.  $CO+N_2$       C.  $CO_2+H_2$       D.  $CO_2+N_2$
20. The volume of air required for the complete combustion of 1 volume of methane is  
 A. 1 vol.      B. 2 vol.      C. 3 vol.      D. 4 vol.

**PART-B (5X 12= 60 Marks)**

21. (a) (i) Draw and explain the MO diagram of bonding in nitrogen oxide molecule. (6)
- (ii) Discuss any four industrial applications of coordination compounds with suitable examples. (6)
- (OR)**
21. (b) (i) Explain the crystal field splitting of d-orbitals in an octahedral complex. (6)
- (ii) Describe any 2 theories to explain the nature of bonding in metals. (6)
22. (a) (i) Explain the following terms with suitable examples.  
 (1) Degree of polymerisation      (2) functionality  
 (3) Homopolymer      (4) elastomer (6)
- (ii) Discuss the preparation, properties and uses of polythene. Distinguish between HDPE and LDPE. (6)

**(OR)**

22. (b) (i) Explain with illustrious examples the polymerisation processes by addition and condensation methods. (6)
- (ii) What are laminated plastics? Explain the manufacturing process, properties and uses of laminated plastics. (6)

23. (a) (i) Describe the mechanisms of electrochemical corrosion by hydrogen evolution and oxygen absorption. (6)
- (ii) What are corrosion inhibitors? How are they classified? Explain their functions with suitable examples. (6)

(OR)

23. (b) (i) Discuss the various factors that influence the corrosion rate. (6)
- (ii) Give a brief account on Heat resistant, Fire retardant and Luminous paints. (6)

24. (a) (i) What is the need for desalination? Explain desalination of water by RO method. (6)
- (ii) Discuss in detail the various stages involved in the treatment of water by municipal corporations. (6)

(OR)

24. (b) (i) Describe the process of demineralization of water by ion exchange method and indicate its advantages over zeolite method. (6)
- (ii) A zeolite softener was 90% exhausted when 50,000 litres of hard water was passed through it. the softener required 500 litres of NaCl solution of strength 100 NaCl/liter. Find out the hardness of water. (6)

25. (a) (i) Describe the ultimate analysis of coal and its significance. (6)
- (ii) With a neat sketch explain how the flue gas is analysed. (6)

(OR)

25. (b) (i) What is producer gas? How is it manufactured? Mention its uses. (6)
- (ii) A fuel contains C = 80%; H = 6%; O = 4%; S = 5% remaining ash. Calculate the minimum quantity of air required for the complete combustion of 1 kg. of the fuel. (6)