7/10/2022

VCD/ SYBT SEM III APPLIED CHEMISTRY I 75 MARKS 2 ½ HRS

**NOTE:**

1. Attempt **all** questions.
2. **All questions** carry **equal** marks.
3. Draw **neat labeled diagrams** wherever necessary.
4. For **Q 2, Q 3 and Q 4** attempt A and B **OR** C and D.

**Q 1 Do as directed (Any fifteen)** 15

1. Hemoglobins are _____ forms.
   a. Tetramer b. Monomer
   c. Dimer d. Trimer
2. Define Enzymes.
3. Which element is used in wound healing?
4. Dietary allowance of Copper recommend _____in a day
   a. 2-3 mg/d. b. 200-300 mg/d
   c. 100-200 mg/d. d. 125-200 mg/d
5. Define Addition reaction.
6. _____ catalyzes the decomposition of hydrogen peroxide to water and oxygen.
   a. Catalase b. Carboxy Peptidase
   c. peroxidase d. ligase
7. What is the first principle of green chemistry?
8. What is the full form of VOC?
9. Which of the following is green solvent ?
   a. Formaldehyde b. Benzene
   c. Water d. Ethanol
10. Write the term missing in the following equation.
    Risk = Hazard x _____
11. Give one Relevance Green Chemistry.
12. True or False. Avoiding the use of catalysts is one of the twelve principles of Green chemistry.
13. Find out% atom economy. $N_2 + 3H_2 \rightarrow 2NH_3$
14. Microwaves have wavelength between _____
    a. 1 cm to 1 m b. 20-100 KHz
    c. 200- 400 nm d. None of these
15. Theoretical yield = _____X $\frac{\text{Molecular weight of product}}{\text{Molecular weight of reactant}}$
    a. Weight of reactant used b. Weight of product used
    c. 100 d. None of the above
16. The condensation of a compound containing dimethyl amine, acetophenone and formaldehyde to form beta amino compound is called _____reaction.
    a. Mannich b. Hantzsch
    c. Cannizaro d. Reformatsky
17. Reduction of 2-butyne to cis-2- butene as major product and trans-2-

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butene (minor product) is an example of _____ reaction.
a. Regioselectivity b. Diastereoselective
c. Enantioselective d. Chemo selective

18. Explain the term 'Synthon'.
19. Give the formula to calculate % Yield
20. Give one example for synthetic equivalent (SE)

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| Q. 2 A | Write on the biochemical importance, dietary sources and dietary allowance of Sodium. | 08 |
| Q. 2 B | Write a note on Metal Complexes in Medicines. | 07 |
| | **OR** | |
| Q. 2 C | Write briefly on the Macronutrients. | 08 |
| Q. 2 D | Explain in detail about peroxidase enzymes. | 07 |
| Q. 3 A | Explain benefits of 'Green chemistry' to human health and environment. | 08 |
| Q. 3 B | Explain Atom economy with two suitable examples. | 07 |
| | **OR** | |
| Q. 3 C | Explain twelve principles of Green chemistry with suitable examples. | 08 |
| Q. 3 D | Explain green solvent as Supercritical $CO_2$ | 07 |
| Q. 4 A | Describe criteria for ideal organic synthesis. | 08 |
| Q. 4 B | Elaborate multicomponent reaction with one example. | 07 |
| | **OR** | |
| Q. 4 C | Write reactions of polymer supported polypeptide synthesis | 08 |
| Q. 4 D | Explain concept of chemoselectivity and enantioselectivity in organic synthesis reaction | 07 |

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| Q. 5 | Write Short notes on **any three** of the following | 15 |
| a. | Types of Elimination reaction | |
| b. | Structure of heme group | |
| c. | Homogeneous and Heterogeneous Catalyst | |
| d. | Green reagent | |
| e. | Retrosynthesis | |

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