

## M.Sc Semester-4 Examination

509

Chemistry (O) (New)

April-2024

Time : 2-30 Hours]

[Max. Marks : 70

Instructions:

- a) Each question carried 2 marks  
 b) Student should select only option, if select more than one, will not be evaluate.

1. Which of the following is aromatic compound?

a. Cyclo propenyl cation	b. Cyclo propenyl anion
c. Cyclo hexane	d. Cyclo butadiene

2. Total number of stereoisomers of tartaric acid is:

a. 1	b. 2
c. 3	d. 4

3. What is the characteristic peak of amine group in IR spectroscopy?

a. 2300 $\text{cm}^{-1}$	b. 1700 $\text{cm}^{-1}$
c. 3400 $\text{cm}^{-1}$	d. 2900 $\text{cm}^{-1}$

4. Which of the reactive intermediate is formed during Reimer-Tiemann reaction?

a. Carbocation	b. Carboanion
c. Carbene	d. Free radical

5. Which of the following is not the separation technique?

a. Ultrasound	b. TLC
c. HPTLC	d. SFC

6. During the fries rearrangement, ester group is converted in to \_\_\_\_\_

a. Acid	b. Ketone
c. Amide	d. Anhydride

7. Which of the following function group/s present in protein?

a. Acid	b. Amine
c. Acid & Amine both	d. None of the above

8. Which of the following is not a psychoactive drug:

a. Alprazolam	b. Azithromycin
c. Chlorozepan	d. Novalgin

P.T.O

9. Nitration reaction using nitronium ion is an example of \_\_\_\_ reaction.

a. Electrophilic	b. Nucleophilic
c. Free radical	d. Carbene

10. Which of the hetero atom present in imidazole?

a. O	b. P
c. N	d. S

11. Suzuki reaction requires

a. Cadmium catalyst	b. Copper catalyst
c. Palladium catalyst	d. Iridium catalyst

12. Beer's law is useful for following spectroscopic technique:

a. UV-Visible	b. NMR
c. IR	d. Mass

13. Indole compound is \_\_\_\_ heterocyclic compound.

a. Mono cyclic	b. Bi cyclic
c. Tri cyclic	d. Tetra cyclic

14. What is the range of pH for alkaline solution?

a. 0-7	b. 0-14
c. 7-14	d. 8-14

15. Cellulose is

a. Mono saccharides	b. Di saccharides
c. Tri saccharides	d. Poly saccharides

16. Which of the molecule is least stable according to conformational analysis?

a. Cyclo propane	b. Cyclo butane
c. Cyclo pentane	d. Cyclo hexane

17. Boc protecting group is useful to protect following functional group

a. Acid	b. Amine
c. Amide	d. Ester

18. What is the range of  $^{13}\text{C}$  NMR spectroscopy in delta ppm?

a. 0-10	b. 0-100
c. 0-250	d. 0-1000

19. What is the characteristic peaks for bromine atom in mass spectrometry?

a. M, M+1 peaks	b. M, M+2 peaks
c. Only molecular ion peak	d. Only base peak

20. What is the full form of MSDS?

a. Material safety data sheet	b. Matter soluble dissolve substance
c. Material safety data storage	d. Material safety document storage

21. Which of the symmetry is absent in water molecule?

a. E	b. C <sub>2</sub>
c. C <sub>2v</sub>	d. C <sub>3v</sub>

22. Total number of Metal-Metal bond present in Nickle tetracarbonyl is:

a. 0	b. 1
c. 2	d. 3

23. Maximum number of electrons can be accommodate in d-orbital is:

a. 2	b. 6
c. 10	d. 14

24. Dehydrohalogenation reaction is an example of:

a. Elimination reaction	b. Addition reaction
c. Substitution reaction	d. Rearrangement

25. What is the full form of RNA?

a. Ribosomal nucleic acid	b. Riboflavin nucleic acid
c. Ribodeoxy nucleic acid	d. Ribonucleic acid

26. BET equation is useful for

a. Chemical Thermodynamics	b. Chemical Kinetics
c. Surface Chemistry	d. Amino acid

27. Which of the compound having highest molecular weight?

a. Fluoro benzen	b. Chloro benzene
c. Bromo benzene	d. Iodo benzen

28. Reduction of Cyanide group gives

a. Acid	b. Ester
c. Amine	d. Amide

29. Sanger's di-deoxy method is useful to determine the sequence of

a. Polymer	b. Carbohydrates
c. Steroids	d. Amino acids

30. The condensation product of phenol with formaldehyde is \_\_\_\_\_.

a. Bakelite	b. Ebonite
c. Vulcanized rubber	d. None of these



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31. Which of the following technique cannot be used for confirmation of the final product in an organic synthesis

a. Crystallization	b. IR spectroscopy
c. Melting point	d. NMR

32. What is the use of TLC in Organic synthesis/preparation?

a. To check the progress of the reaction	b. Detection of functional group
c. To check solubility	d. To check melting point

33. Which of the following is not an oxidizing agent?

a. Con. $\text{HNO}_3$	b. $\text{K}_2\text{Cr}_2\text{O}_7$
c. $\text{KMnO}_4$	d. Glycerin

34. Which of the following cannot be used as reference in literature survey for review writing?

a. Books	b. Website
c. Articles	d. Discussion with mentor

35. Which of the following is not an ionization technique for mass spectrometry?

a. CCI	b. FAB
c. ESI	d. Maldi

X