

**P P SAVANI UNIVERSITY**  
Fifth Semester of B.Sc. Examination  
Dec.-Jan.-2020-21  
**SSCH3030-Inorganic Chemistry-VII**

09.01.2021, Saturday

Time: 10:00 a.m. to 12:30 p.m.

Maximum Marks: 60

**Section-A (Total Marks - 20)**

**Q.1 Objectives (20 MCQ Compulsory-1 mark each)**

**(20)**

- 1 The mass analyzer in a mass spectrometer separates the sample ions based on their \_\_\_\_\_ ratio.  
A m/z  
B q/r  
C m/r  
D q/z
- 2 The full form of GC-MS is  
A Gas spectrometry- Mass chromatography  
B Gas chromatography- Mass spectrometry  
C Gas carrier-Mass spectrometry  
D All of the above.
- 3 FAB is a type of  
A Mass analyzer  
B detector  
C Ionization method  
D None of the above
- 4 High intensity photons are used for ionization in  
A SIMS  
B FAB  
C MALDI  
D All of the above
- 5 Resolution is defined as  
A  $M/\Delta M$   
B  $MR/\Delta M$   
C  $\Delta M/M$   
D  $M/\Delta MR$
- 6  $\text{Ph}_3\text{Al}$  is an example of  
A Metal-carbon Ionic Bonds  
B Metal-Carbon Bridge Bonding  
C Metal-Carbon Two Electron Covalent Bonds  
D Metal - Carbon Multiple bonds
- 7 Lithium is often stored in \_\_\_\_\_ before use.  
A kerosene  
B benzene  
C toluene  
D All of the above
- 8 The alkylaluminium halides and aluminium alkyls can be synthesized by direct reaction of an alkyl halide with aluminium  
A True  
B False  
C Can't predict  
D Conditional
- 9 Organoaluminium compounds are sensitive to  
A air

- B water  
C alcohols  
D All of the above
- 10  $R_3P=CH_2$  is an example of  
A Metal-Hydrogen Exchange  
B Metal-Metal Exchange  
C Metal - Carbon Multiple bonds  
D Metal-Halogen Exchange
- 11 Spectroscopy is the general term used for the interaction of matter with  
A sound  
B animals  
C birds  
D radiation
- 12 Which of the following is the form of electromagnetic radiation?  
A Gamma rays  
B Visible light  
C radiofrequencies  
D All of the above
- 13 The distance between the adjacent crests is known as  
A wavelength  
B amplitude  
C phase  
D frequency
- 14 The number of waves passing through one point in one second is called  
A wavelength  
B amplitude  
C phase  
D frequency
- 15 Beer's law is strictly applicable when measurements are done using \_\_\_\_\_ radiations.  
A dichromatic  
B polychromatic  
C monochromatic  
D All of the above
- 16 When a particular atom in a molecule is replaced by its isotope it is still similar \_\_\_\_\_.  
A physically  
B chemically  
C both  
D none
- 17 The gas phase spectra generally show \_\_\_\_\_ lines than corresponding liquid spectra.  
A broader  
B narrower  
C both  
D none
- 18 The velocity of light  $c$  is  
A  $3 \times 10^{10}$  m/s

- B  $3 \times 10^8$  m/s
- C  $3 \times 10^9$  cm/s
- D None of the above

- 19 In an electromagnetic radiation, the electric and magnetic field are
- A parallel
  - B perpendicular
  - C Both parallel and perpendicular
  - D None of the above
- 20 The number of waves in one cm is called
- A wavenumber
  - B amplitude
  - C phase
  - D wavelength

**Section-B (Total Marks - 40)**

**Q.1 Short Notes (attempt all four- 3 marks each)**

**(12)**

- A Write a short note on interaction between radiation and matter.
- B Discuss different energy ranges in electromagnetic radiations.
- C Discuss sample introduction in a mass spectrometer.
- D Discuss the applications of any four organometallic compounds.

**Q.2 Explain in detail (attempt any four-7 marks each)**

**(28)**

- A Describe Electrospray Ionization.
- B Write a detailed note on Metal Carbonyls
- C Write a detailed note on electromagnetic radiation.
- D Describe and explain different laws of light absorption.
- E Explain in detail Born-Oppenheimer approximation.