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**B.Pharm. (Semester – VIII) (CGPA) Examination, 2018**  
**PHARMACEUTICAL ANALYSIS – VI**

Day and Date : Monday, 17-12-2018  
Time : 2.30 p.m. to 5.30 p.m.

Total Marks : 70

1. Multiple choice questions.

(15×1=15)

- No of orientation for magnetic nuclei is given by \_\_\_\_\_ formula.  
A)  $2I + 2$                       B)  $2I + 1$                       C)  $2I - 2$                       D)  $2I - 1$
- The chemical shift value for carboxylic proton is \_\_\_\_\_ Delta ppm.  
A) 10 – 12                      B) 4 – 6                      C) 9.5 – 10                      D) 7 – 9
- Most intense peak in the mass spectrum is called as \_\_\_\_\_ Peak.  
A) Isotope                                      B) Fragment  
C) Base peak                                      D) Rearrangement
- Bursting strength test is carried out for \_\_\_\_\_ packaging material.  
A) Metallic sheet                                      B) Glass  
C) Rubber closure                                      D) Aluminium foil
- \_\_\_\_\_ are the reagents used for reducing test of packaging material.  
A)  $\text{KMnO}_4$                                       B)  $\text{H}_2\text{SO}_4$   
C) KI                                      D) All of these
- Number of signals for 1-propanol is  
A) 3                                      B) 2                                      C) 4                                      D) 5
- McLafferty rearrangement is seen in the m/z ion having aldehydic, ester, carboxylic, ketone or amide functional group with suitably placed \_\_\_\_\_ Abstractable hydrogen.  
A) Alpha                                      B) Beta                                      C) Gamma                                      D) Delta
- \_\_\_\_\_ ion source is used for studying high molecular weight biomolecule samples.  
A) MALDI                                      B) Electro spray ionization  
C) FAB                                      D) EI

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- 9) Which of the following is not the components of quality management system ?  
A) Quality assurance                      B) Quality validation  
C) Good manufacturing practice        D) All of these
- 10) \_\_\_\_\_ is the central value of all the observations arranged from lowest to highest.  
A) Mode    B) Mean  
C) Median    D) Standard deviation
- 11) Time of flight mass analyzer, the separation of the ions takes place due to different \_\_\_\_\_ of ions.  
A) Magnetic dipole                              B) Velocities  
C) Nuclear spin                                    D) Potential
- 12) Concurrent validation is carried out \_\_\_\_\_  
A) During production                            B) During product development stage  
C) After production                                D) All of these
- 13) \_\_\_\_\_ is the lowest amount of analyte in a sample that can be detected but not necessarily quantitated under stated experimental conditions.  
A) Limit of detection                            B) Limit of quantitation  
C) Range    D) Assay
- 14) What is the median of the data 7, 2, 4, 3, 2, 5, 10, 1, 12, 8 ?  
A) 4    B) 5.5    C) 4.5    D) 5
- 15) Standard Error of Mean (S.E.M.) of a sample can be calculated by \_\_\_\_\_  
A) Dividing variance by sample mean  
B) Dividing S.D. by sample mean  
C) Dividing S.D. by square root of number of variance  
D) Dividing mean by mode sample
2. Answer **any five** of the following questions. (5×5=25)
- 1) Write a note on T-test.
  - 2) Draw a neat labeled diagram of NMR spectrometer. Give its principle.
  - 3) Write on magnetic deflection mass analyzer used in mass spectrometry.
  - 4) Write on accuracy and precision validation parameter of analytical method.



- 5) Describe bursting strength and hydrolytic resistance test for packaging material.
  - 6) Draw the structure of organic sample having molecular formula  $C_4H_8O_2$  and is an ester with NMR signals at  $4.1 \delta$  as quartet,  $2.1 \delta$  as singlet and  $1.2 \delta$  as triplet.
3. Answer **any three** of the following questions. **(3×10=30)**
- 1) Write on principle, sample inlet system and applications of mass spectrometry.
  - 2) Write on process validation and quality assurance.
  - 3) Explain with suitable examples factors affecting chemical shift.
  - 4) Write on Electron Impact, Chemical ionization as an ion source in mass spectrometry.
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