

Exam Date &amp; Time: 26-Sep-2020 (02:00 PM - 05:30 PM)

**PSG COLLEGE OF ARTS AND SCIENCE**

Note: Writing 3hrs: Checking &amp; Inserting Image : 30mins

**MSc DEGREE EXAMINATION MAY 2020  
(Fourth Semester)****Branch - CHEMISTRY****ANALYTICAL CHEMISTRY [18CHP21]**

Marks: 75

Duration: 210 mins.

**SECTION - A**

Answer all the questions.

- 1) Identify the process involved in the chromatography when liquid is used as a both stationary and mobile phase  
(i) HPLC  
(ii) Column  
(iii) Gas  
(iv) None of the above (1)
- 2) The movement of colloidal particles under the influence of an electric field is called  
(i) Emulsion  
(ii) Gels  
(iii) Electrophoresis  
(iv) Electro Motive Force (1)
- 3) Choose the most intense peak in a mass spectrum  
(i) Base Peak  
(ii) Meta stable Peak  
(iii) Isotopic Peak  
(iv) Parent ion peak (1)
- 4) Nitrogen containing organic compound appears at  
(i) 0  
(ii) any even number  
(iii) any odd number  
(iv) fraction (1)
- 5) \_\_\_\_\_ limit is function of both signal strength and signal stability.  
(i) detection  
(ii) confidence  
(iii) threshold limit value  
(iv) none of the above (1)
- 6) Which fuel / oxidant mixture used in a flame atomizer provides the lowest temperature flame? (1)

- (i) air / acetylene
- (ii) O<sub>2</sub> / acetylene
- (iii) air / propane
- (iv) N<sub>2</sub>O / acetylene

- 7) Which of the following option is appropriate for the TGA and DTA?  
 (i) TGA and DTA measures only weight  
 (ii) TGA measures only weight while DTA measures other effects  
 (iii) TGA and DTA measures only temperature  
 (iv) TGA measures only temperature while DTA measures other effects (1)
- 8) Differential scanning calorimetry is a technique to measure  
 (i) electrical conductivity  
 (ii) impact energy  
 (iii) thermal expansion  
 (iv) specific heat (1)
- 9) Diffusion current is due to  
 (i) applied electric field over a given distance  
 (ii) variation in carrier concentration  
 (iii) random motion of holes  
 (iv) recombination of holes and electrodes (1)
- 10) Amperometric titration is an application of  
 (i) potentiometry  
 (ii) coulometry  
 (iii) electro gravimetry  
 (iv) voltammetry (1)

### SECTION - B

Answer all the questions.

- 11) Describe about ion exchange chromatography. (5)
- a) (5)
- [OR] Write notes on counter current chromatography. (5)
- b) (5)
- 12) Give an account of McLafferty rearrangement. (5)
- a) (5)
- [OR] Discuss about FAB mass spectroscopy. (5)
- b) (5)
- 13) What are the applications of AAS? (5)
- a) (5)
- [OR] Explain about the instrumentation and application of AES. (5)
- b) (5)
- 14) What are the factors that affecting the thermograms? (5)

- a)  
[OR] Discuss the principle, instrumentation and any two applications of differential thermal analysis. (5)  
b)
- 15) Explain the applications of polarography. (5)
- a)  
[OR] Write short notes on Amperometric titrations. (5)  
b)

**SECTION - C**

**Answer all the questions.**

- 16) Give the principle, instrumentation and applications of HPLC. (8)  
a)  
[OR] Explain the principle, instrumentation and applications of GLC. (8)  
b)
- 17) State and explain with suitable example nitrogen rule. (8)  
a)  
[OR] Describe about Retro Diels Alder cleavage. (8)  
b)
- 18) Explain the principle, instrumentation and applications of single beam absorption spectrometer. (8)  
a)  
[OR] Explain the principle and types of Atomic Emission Spectroscopy. (8)  
b)
- 19) Give the principle of DTG and mention the factors which influencing the thermograms. (8)  
a)  
[OR] Write notes on DSC. (8)  
b)
- 20) What is called DME? And give its advantages. (8)  
a)  
[OR] Describe the principle and instrumentation of coulometric method. (8)  
b)

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