

Course No: PHRM 3222  
Course Title: Pharmaceutical  
Instrumental Analysis  
Date: 26/10/2017  
No. of Questions: (2)  
Time: 1 hour  
Using Calculator (Yes)

University of Palestine



1<sup>st</sup> Midterm Exam  
2017/2018  
Total Grade:

Instructor Name: Sharief Mezyed  
Student No.: \_\_\_\_\_  
Student Name: \_\_\_\_\_  
College Name: Pharmacy  
Dep. / Specialist: \_\_\_\_\_  
Using Dictionary (No)

**Q1) Define each of the following:**

- 1- Limit of linearity
- 2- Dynamic Range
- 3- Standard Deviation
- 4- Spectroscopy

**Q2) Answer as required:**

1. Distinguish between analyze and determine; Detection and identification in analytical chemistry.
  
2. Suppose that you carry out an analytical procedure to determine the protein amount in fish sample, and generate a linear calibration curve with equation of  $y = 0.0163x + 0.004$ . Find the quantity of unknown protein (use  $\mu\text{g}$  as a unit for your answer) that gives a measured response of 0.264 when a blank has an absorbance of 0.095.
  
3. Calculate the frequency (Hz), wavenumber ( $\text{cm}^{-1}$ ), and energy of photons (J/mol) of visible light with a wavelength of 562 nm (Velocity of light =  $3 \times 10^8$  m/s; Planck's constant =  $6.62 \times 10^{-34}$ ).

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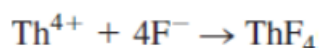
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4. Outline the steps commonly employed in an analytical procedure. Briefly describe each step.
5. What is the density of 53.4 wt% aqueous NaOH (FM 40.00) if 16.7 mL of the solution diluted to 2.00 L gives 0.169 M NaOH?
6. How many grams of 0.491 wt% aqueous HF (Molecular weight: 20.01 g/mol) are required to provide a 50% excess to react with 25.0 mL of 0.0236 M  $\text{Th}^{4+}$  by the reaction



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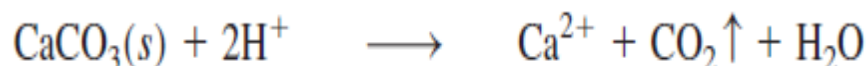
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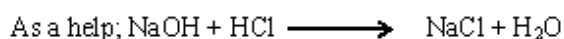
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7. Limestone consists mainly of the mineral calcite,  $\text{CaCO}_3$  (Molecular weight: 100.087 g/mol). The carbonate content of 0.5413 g of powdered limestone was measured by suspending the powder in water, adding 10.00 mL of 1.396 M HCl (Molecular weight: 36.460 g/mol), and heating to dissolve the solid and expel  $\text{CO}_2$ :



The excess HCl acid required 39.96 mL of 0.1004 M NaOH (FM 40.00) for complete titration. Find the weight percent of calcite in the limestone.



End of Questions  
*Good Luck*