

VPhot XI Final Exam - _____ (Provide Your Name)

Please email your final exam to me at kenmenstar@gmail.com by **1200UT Monday October 26**). Provide your answer following each question. You may attach screen captures as files (with understandable names) or cut and paste them into the document (preferred). **Read all questions carefully! I will grade this with attention to complete detail, so read carefully and take your time. Complete the bonus questions if you are concerned about your score. The extra points may help?**

Yes, there are many questions but note that many of them only require you to observe items on the result pages. I have given you lots of time. It should not take that long! Note: Remember to save the results to the Analysis Log where appropriate since one question requires you to report this data.

Good Luck!

Part 1 - Selecting and Analyzing Individual Images

1. Select BX_Pup V images collected between/including 150227 and 150310.
 - a. Provide a screen capture showing how you set up this selection (with the result)?
 - b. These images are calibrated - T or F?
 - c. These images were collected with the _____ telescope.
 - d. Stack the V images collected on each day. Provide a screen capture of the image list.
 - e. Why is it useful to collect and stack replicate images collected over a short period of time?
 - f. How is the stacked image time calculated?
2. Set up a sequence for these images. Include all VSX targets and all AAVSO comps.
 - a. Provide a screen capture of one image page with sequence shown. (Show page including target/comp list and image.)
 - b. What aperture/annulus settings did you use?
 - c. Explain what info you used to select these values?
 - d. What comps might you delete and why?
 - e. Provide a screen capture of the Target Star Estimates for all the targets.
 - f. Provide a screen capture of the (N) Comparison Stars that you selected.
 - g. The magnitude of BX Pup in this image was _____.
 - h. The Err of BT Pup was _____. (Not a typo!)
 - i. The difference between the calculated and known magnitude of your check star was _____.
 - j. Save this data in the Analysis Log. How?

Part 2 - Analyzing Time Series

1. Select all S_Lyn V images. Set up a sequence with only S Lyn and your desired comps.
 - a. Run a Time Series. Provide a screen capture of the Time Series results page.
 - b. It is necessary to manually save the data to the Analysis Log - T or F?
 - c. The Average V Magnitude of S Lyn is _____?
 - d. The Std of S Lyn is _____?
 - e. Does this Std value indicate that the target is variable? Y or N?
 - f. Is the check star variable? Y or N?
 - g. Provide a screen capture of the Target / Check Light Curve.
 - h. If you wanted to generate you own excel spreadsheet of this data, how would you do that? Explain the VPhot steps only?

2. Select all S_Lyn B images. Run a Time Series with the same sequence.
 - a. Does the B light curve look similar in shape to the V light curve?
 - b. Is the B magnitude range greater or smaller than the V magnitude range?
 - c. The average B Magnitude is _____?
 - d. Bonus: Is this star redder or bluer than our Sun? Y or N? How did you determine this?
 - e. Bonus: This star is a _____ Variable.

Part 3 - Transformation of Filter Images

1. Select all R_CrB images from 140602. Stack B,V;I images separately over appropriate cadences.
 - a. What cadence did you choose? Why?
 - b. One I image is missing, what do you decide to do?
 - c. Provide a screen capture of the entire image list after stacking (or as much as you can show).
 - d. Transform BV and VI stacked pairs, where available or use alternative. Save data in Analysis Log.
 - e. The four Standard Magnitudes you calculated are _____? (This is not a trick question.)
 - f. How would you calculate the V Magnitude that you will report to the AAVSO AID? (Again, this is not a trick question, but it does require thinking!)
 - g. In a table, show the Transformed and Non-transformed B;V magnitudes, and their difference for R CrB.
 - h. Is there a short cut for determining the non-transformed magnitudes? Explain?
 - i. Bonus: Not in this case but often, the comparison stars do not have magnitudes for both pairs of filters. This yields a significantly inaccurate transformed magnitude. Where/how would you remove these comps from consideration?

Part 4 - Reporting Data

1. Open the Analysis Log which will now be populated with the results of the questions discussed above.
 - a. Select all the Single Image Photometry results that exist and provide a screen capture showing this.
 - b. How can you visually tell a Single Photometry result in the Analysis Log? More than one way exists! (Hint: Don't think, just look!)
 - c. Create an AAVSO Report for these results. How?
 - d. Select all of the Transformed Photometry results that exist. How can you visually tell a Transformed Photometry result in the Analysis Log? More than one way exists! (Hint: Don't think, just look!)
 - e. How do you create an AAVSO Report for this Transformed Data? Explain?
 - f. Attach this AAVSO Report to the exam?
 - g. Select a Time Series result that exists. How can you visually tell a Time Series Photometry result? More than one way exists! (Hint: Don't think, just look!)
 - h. Create an AAVSO Report for this time series. What are the two steps you need to conduct to create this report? Explain?
 - i. Bonus: Show (screenshots) the different ways that differentiate each type of results on the Analysis Log.

Part 5 - Transformation Coefficients

1. After you have stacked your multi-filter images of NGC7790, open one of them and select the appropriate comps for generation of transformation coefficients. Don't obsess about this, simply answer the question as it is asked! (Perhaps you remember what I said (in forum post) I simply do for comps when I'm going to use TG?)
 - a. How/where do you get the proper comps?
 - b. Are some of the comps close to the edge of your FOV or overlapping with other comps?
 - c. How do you remove such comps? Do not delete comps with SNR < 100 or other value. Save your final sequence.
 - d. How do you get a report(s) of the instrumental magnitudes of these comps in each filter? Explain?
 - e. Save one report to your computer and attach it to your exam.
 - f. Bonus: If you have TG on your computer, attach (screen shot) one graph of a transformation coefficient with outliers deactivated.