

Name: _____

MEA 443 WEATHER ANALYSIS AND FORECASTING, FALL 2010
Quiz 13, Thursday 12/2/2010

- ___ 1.) When we say that a numerical model *parameterizes* cumulus convection, it means
- a.) that the model microphysics scheme accounts for convection directly on the model grid.
 - b.) that the model checks for conditions favorable to small-scale convection, and if these conditions are met, the model mimics what actual convection would do.
 - c.) the model system of equations is not closed unless we account for convection with the grid-scale microphysics scheme.
 - d.) the model is run with a grid spacing small enough that the convective parameterization scheme can be turned off.

- ___ 2.) The “CFL” condition describes a relation between which of the following aspects of a numerical model?
- a.) The PBL and convective parameterization schemes.
 - b.) The microphysics and the convective parameterization schemes
 - c.) The grid spacing, the time step, and the speed of waves in the model equations.
 - d.) The grid spacing and whether it is necessary to run with a convective parameterization scheme.

- ___ 3.) Which of the following characterize a model using a “TKE” based PBL scheme?
- a.) The model will use the TKE equation to determine whether and how strong turbulence is in the various grid cells, and then mix other variables accordingly.
 - b.) Models using this type of PBL scheme must use a convective parameterization scheme.
 - c.) These models only account for turbulence in the surface layer, not in the PBL.
 - d.) Models using TKE-based schemes are generally less accurate than those using convective parameterization schemes.

- 4.) What are the four main advantages of ensemble forecasting? List and briefly describe each.
- a.)
 - b.)
 - c.)
 - d.)

- 5.) List and describe one useful source of information that is available from an ensemble forecasting system that is not available from a single deterministic model run.