Answers to Guide 12

* CMMI: (capability maturity model integration)
  + Who uses CMMI most frequently?
    - Department of Defense and U.S. Government contracts relating to software development.
  + Compare and contrast the five maturity levels.
    - Level 1 – Initial: processes unpredictable, poorly controlled, and reactive
    - Level 2 – Managed: processes characterized for projects and is often reactive.
    - Level 3 – Defined: processes characterized for the organization and is proactive. (project tailor their processes from organization’s standards)
    - Level 4 – Quantitatively Managed: processes measured and controlled.
    - Level 5 – Optimizing: focus on process improvement.
* Process area (CMMI): (a cluster of relative practices in an area, that, when implemented collectively, satisfies a set of goals considered important for making improvement in that area.)
  + Compare and contrast the following process areas (skimming the others):
    - Configuration Management (CM):
      * Support process area at maturity level 2
      * Purpose is to establish and maintain the integrity of work products using configuration identification, configuration control, configuration status accounting, and configuration audits.
    - Project Planning (PP):
      * Process area at maturity level 2
      * Purpose is to establish and maintain plans that define project activities.
    - Requirements Development (RD):
      * Engineering process area at maturity level 3
      * Purpose is to elicit, analyze, and establish customer, product, and product component requirements.
    - Risk Management(RSKM):
      * Process area at maturity level 3
      * Purpose is to identify potential problems before they occur so that risk handling activities can be planned and invoked as needed across the life of the product or project to mitigate adverse impacts on achieving objectives.
    - Technical Solution (TS):
      * Engineering process area at maturity level 3
      * Purpose is to select, design, and implement solutions to requirements.
      * Encompasses products, product components, and product related lifecycle processes either singly or in combination as appropriate.
* Software Metrics: (a standard of measure of a degree to which a software system or process possesses some property.)
  + Which of the metrics discussed in Section 1 are used to measure the following things? Pay particular attention to “size” metrics.
    - Software product:
    - Software process:
    - Software quality:
  + W.E. Deming said that “the most important things cannot be measured.” DeMarco articulated a similar idea (see his quote above). Does this apply to software measurement?
  + Section 3 states that metrics can sometimes do more harm than good. Do you agree with this? If so, give an example; if not, explain why not.
* Project Management Tools:
  + Martin Fowler’s Continuous Integration
    - Why is software integration so hard?
    - What is continuous integration?