COMPETENCIES
EMPLOYEE SELF-ASSESSMENT

PQM 301 – ADVANCED PRODUCTION, QUALITY AND MANUFACTURING

PQM 301	Competency	Yes	No	Work Description/Justification
1	Assess risk management policy in DoD acquisition regulations and how it relates to acquisition reform.			
2	Outline the risk management process.			
3	Construct examples of risk assessment techniques.			
4	Point out typical risk areas where risk events may occur, causing deviation from an Acquisition Program Baseline.			
5	Evaluate the application of a hypothetical Risk Management Process and recommend improvements to the process to mitigate a program's risk within an Integrated Product and Process Development (IPPD) / Integrated Project Team (IPT) environment.			
6	Review and compare the different definitions of quality and how they apply to the acquisition of DoD weapons systems.			
7	Analyze the Cost of Quality Model.			
8	Assess the four cost areas associated with the Cost of Quality Model and be able to apply to any acquisition program.			
9	Examine and apply the requirements specified in DoD 5000.2-R, 5.2.3, Quality and demonstrate how to apply these requirements in a program office setting.			

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10	Evaluate ISO-9000.1994 (series) and ISO-9000.2000 (series) as basic quality management systems.			
11	Compare and contrast the advantages of ISO-9000.2000 over ISO-9000.1994 in DoD.			
12	Examine the advantages and disadvantages of using warranties with Advanced Quality Management Systems as stated in DoD 5000.2R, section 2.9.3.7.			
13	Develop the inputs and outputs of the Systems Engineering Process (SEP). Examine the input and output of each step of the Systems Engineering Process (requirements analysis, functional analysis and allocation, synthesis, and systems analysis and control).			
14	Analyze the major characteristics of an IPT.			
15	Construct a maturity matrix for each of the major characteristics of an IPT.			
16	Examine the overall concepts and purpose of value stream mapping.			
17	Discuss how to select, bound, and assign responsibility, for mapping a value stream.			
18	Understand common symbols and methods that are used to physically create a current state value stream map.			

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19	Apply selected questions regarding major aspects of Lean Manufacturing (among them take time, flow and pull) to identify potential improvements to the current state value stream.			
20	Understand how to use the established symbols and identified potential improvements to create a future state value stream map.			
21	Evaluate the need for Business Process Reengineering using Information Technology in business and manufacturing corporations to make them effective and efficient in today's market.			
22	Compare and contrast the enabling role of Information Technology on Business Process Reengineering.			
23	Assess the essential elements of Supply Chain Management.			
24	Compare and Contrast mass production versus mass customization.			
25	Evaluate the benefits of Cycle Time Reduction.			
26	Compare and contrast various computerized systems that support the manufacturing/ business process.			
27	Analyze the benefits associated with Networked Organizations and Virtual Corporations on market share and competitiveness.			
28	Apply the concepts of key characteristics, producibility and process engineering.			

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29	Evaluate the relationships between Systems Engineering and Integrated Product/Process Development (IPPD) as practiced by private industry and the Government.			
30	Examine the general concepts and guidelines behind the Theory of Constraints/ Synchronous Manufacturing.			
31	Apply selected TOC methods to identify and reduce constraints in production and other operations.			
32	Explain similarities and differences between TOC and Lean Manufacturing.			
33	Review the definitions of lean production.			
34	Examine the Lean Aerospace Initiative (LAI) and LAI's Lean Enterprise Model.			
35	Analyze the characteristics of Lean Design Production principles.			
36	Evaluate the impacts of Lean Production on Department of Defense Programs.			
37	Construct the basic steps required to conduct a Design of Experiment.			
38	Analyze how DOE can be employed during design, manufacturing, and quality assurance in an IPT environment.			
39	Assess the relationship of DOE to key characteristics, and key manufacturing processes.			
40	Demonstrate the steps necessary to construct a House of Quality.			

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41	Derive the outputs for the House of Quality for a product or service. Evaluate how QFD could be used in the IPT environment and be integrated with other analytical tools.			
42	Examine the key elements of the National Technology and Industrial Base (NTIB).			
43	Point out the USD (A&T) Civil-Military Integration (CMI) vision.			
44	Review current industrial capability issues, such as those created by the defense downsizing and acquisition reform.			
45	Evaluate policy initiatives regarding industrial capabilities required by DoD and how these requirements may be met using one integrated industrial base.			
46	Predict the implications of integrating COTS/NDI and best commercial practices.			
47	Assess industrial capability program risks, and apply appropriate risk management tools.			
48	Analyze contractor unique approaches to the development and deployment of production and QA systems and processes.			
49	Evaluate the effect of a contractor's manufacturing/QA approach on the government.			

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50	Analyze and describe the five major ESH issues contained in sub-sections of Section 4.3.7 of DoD Regulation 5000.2-R (e.g., 4.3.7.1 - National Environmental Policy Act (NEPA), 4.3.7.2 - Environmental Compliance, 4.3.7.3 - System Safety and Health, 4.3.7.4 - Hazardous Materials, and 4.3.7.5 - Pollution Prevention).			
51	Justify the aspects of initiating and maintaining a programmatic ESH evaluation required in Section 3.3.7 of DoD Regulation 5000.2-R and how it relates to the systems engineering process with particular emphasis on how materials and industrial process impact life cycle costs.			
52	Argue some of the proven and accepted methods, tools, and techniques program technical managers can use to identify, analyze, and mitigate ESH risks throughout the life cycle of their weapon systems and make informed decisions based on ESH Life Cycle Cost considerations.			
53	Assess current trends in the manufacturing/QA career field.			
54	Analyze current acquisition policies and initiatives that impact manufacturing/QA.			
55	Apply the systems engineering process to the generation of derived manufacturing requirements and the analysis of manufacturing processes and operations.			

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56	Examine the general characteristics of a major data base students can access to support manufacturing and QA decisions Program Managers Work Station (PMWS).			
57	Demonstrate ability to access PMWS electronic database.			
58	Show ways in which manufacturing and quality assurance personnel can use this database.			
59	Measure the interrelationships of the inputs and outputs of electronic tools in reducing program risks.			
60	Examine various advanced manufacturing techniques currently in use or being developed by industry worldwide.			
61	Compare and contrast best manufacturing practices being utilized with the advanced manufacturing techniques.			
62	Evaluate the impacts of advanced manufacturing techniques on defense acquisition programs.			
63	Examine several core ethical values.			
64	Point out the relationship between values and behavior. Validate the GKC model to assess program related ethical decisions.			

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65	Examine the technical concepts such as EDI, PDM and VPNs that are enabling manufacturing enterprises to move toward virtual enterprises, distributed supply chains, and collaborative distributed engineering and manufacturing.			
66	Point out how the Internet/WWW is enabling the move toward "Agile" manufacturing.			
67	Evaluate U.S. government policy concerning e-commerce, to include the DoD Integrated Digital Environment Initiative.			
68	Apply E-commerce concepts to daily work operations.			
69	Evaluate how Internet technology can change an organization's business strategy.			
70	Evaluate how the WWW is changing business and technical processes.			
71	Evaluate how information technology may be employed within the government.			
72	Understand the lean philosophy of operations management.			
73	Be able to perform an advanced exercise of root cause analysis.			
74	Understand how to integrate various aspects of operations management, e.g. quality, scheduling, innovation and human resource management.			

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75	Examine the general characteristics of a fourth generation Collaborative Engineering Work Environment (CEWE).			
76	Demonstrate an ability to access and perform work in the above CEWE.			
77	Show ways in which manufacturing and quality assurance personnel can use a CEWE environment.			
78	Measure the effectiveness of a CEWE in reducing program risks.			
79	Be able to recognize and define a Six Sigma process.			
80	Develop and plan for the major business and technical elements needed for a Six Sigma implementation.			
81	Apply basic Six Sigma calculations and flow analysis to a manufacturing process.			
82	Explain key activities for each phase and how they may be tailored to meet the various situations of particular programs.			
83	Explain key management issues associated with the use of common acquisition strategies on software-intensive systems.			
84	Determine management issues associated with the software development paradigms. Summarize key issues associated with the use of commercial and international software development standards.			

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85	Summarize key Federal and DoD metric policies and standards.			
86	Evaluate the most common categories of software metrics.			
87	Discuss key factors which influence the choice and application of specific software acquisition management metrics.			
88	Relate software process maturity to software quality. Assess a given set of software metrics.			
89	Explain why the determination and measurement of software product quality can be particularly difficult.			
90	Describe the role of key management processes (Inspections, Formal Methods, Process Maturity, etc.) in software quality.			
91	Outline the key components of an effective Software Quality Assurance (SQA) program.			
92	Discuss SQA activities that might be used on a project.			
93	Describe the key differences between Traditional Cost Accounting and Activity Based Costing.			
94	Explain why Activity Based Costing is an enabler of Lean Manufacturing, while Traditional Cost Accounting may inhibit Lean implementation.			
95	Understand the types of Computer Modeling and Simulation technologies currently available to the Production/Manufacturing manager.			

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96	Critique the advantages and disadvantages of using computer simulations in dealing with production operation issues.			
97	Evaluate the interrelationship of the inputs and outputs of factory simulation and other models to optimize factory capacity, flow and bottlenecks.			
98	Create performance-based statements of objectives and incentives for manufacturing support.			
99	Analyze and apply past performance in structuring of a solicitation.			
100	Evaluate current, market-ready commercial practices with end-to-end visibility of inventory.			
101	Evaluate software engineering principles and how they apply through the acquisition life cycle.			
102	Know demilitarization requirements to assure resale of surplus material eliminates potential of hazardous/safety incidents.			
103	Know and understand agile manufacturing.			
104	Evaluate adequacy of contractor manufacturing capabilities.			
105	Describe the basic elements of a Lean Enterprise.			