Assessment Blueprint

AMBA Master CNC Specialist Certification

Test Code: 8275 Version: 01

Specific Competencies and Skills Tested in this Assessment:

Computer Numerical Control (CNC) Basics

- Define the role and responsibilities of a CNC programmer and operator
- Define principles of Cartesian Coordinate System and Reference Point
- Define function and purpose of CNC part program

CNC Control Operations

- Identify CNC Control basics
- Perform operations on CNC Control
- Troubleshoot CNC Control

Tooling for Turning

- Describe proper care in tooling for turning
- Describe equipment assembly for turning

Tooling for Machining Centers

- Define proper care of tooling for machining centers
- Define equipment assembly for machining centers
- Demonstrate care and use of tool holders
- Select and apply the appropriate style of tool holder

High Performance Machining

- Demonstrate knowledge of high performance machining
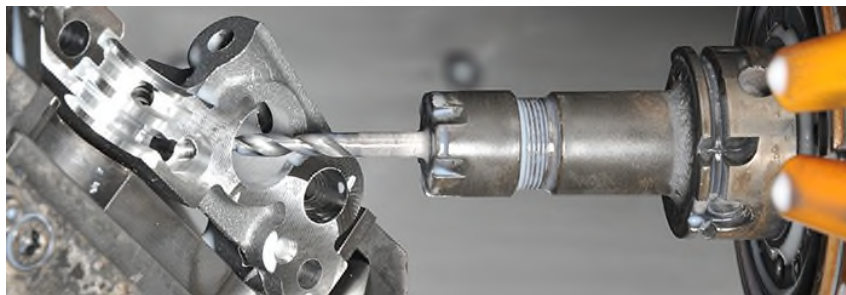
Specific Competencies and Skills continued:

CAM

- Demonstrate knowledge of Computer Aided Machining (CAM) System Software
- Integrate tooling selection with machining application
- Develop a work piece sequence of operation
- Select machine tool to be used
- Perform CAM operation

Computer Numerical Control (CNC) Mill

- Describe types of and components of CNC milling machines
- Perform CNC milling calculation
- Perform CNC mill setup
- Make part modifications on CNC mill
- Perform CNC mill operations
- Program CNC mill

Computer Numerical Control (CNC) Lathe

- Perform CNC lathe setup
- Make part modifications on CNC lathe
- Perform CNC lathe operations
- Program CNC lathe

Operate RAM-EDM

- Perform setup
- Operate RAM-EDM
- Program individual burn on RAM-EDM
- Perform specialty finishes on RAM-EDM
- Monitor operation of RAM-EDM
- Measure important parameters when using RAM-EDM

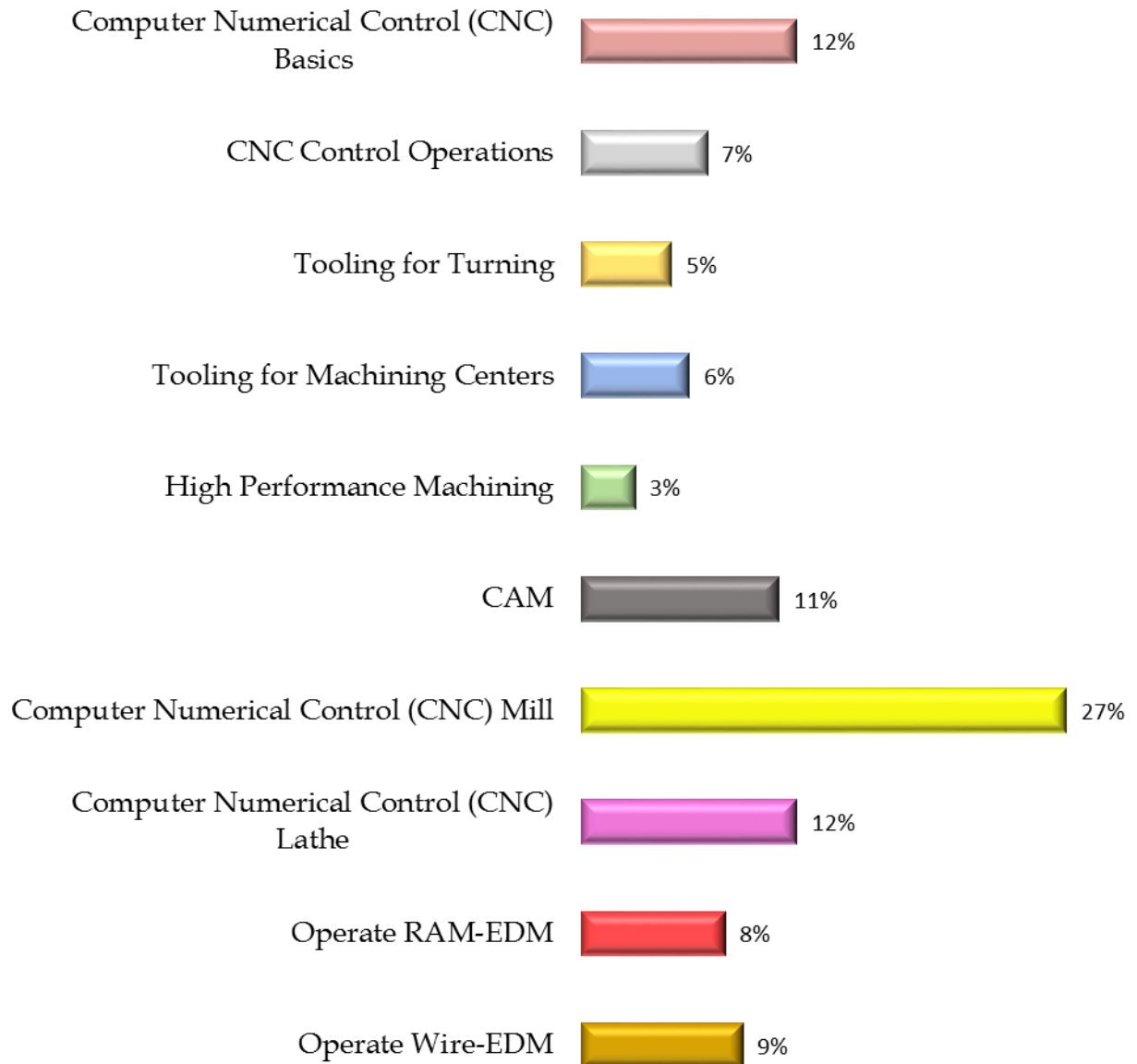*Specific Competencies and Skills continued:*

Operate Wire-EDM

- Operate hole popper on Wire-EDM
- Program Wire-EDM
- Set up job on Wire-EDM
- Select appropriate wire for application on Wire-EDM
- Operate Wire-EDM
- Perform routine preventative maintenance on EDM

Written Assessment:

Administration Time: 4 hours
Number of Questions: 196

Areas Covered:

Area	Percentage
Computer Numerical Control (CNC) Basics	12%
CNC Control Operations	7%
Tooling for Turning	5%
Tooling for Machining Centers	6%
High Performance Machining	3%
CAM	11%
Computer Numerical Control (CNC) Mill	27%
Computer Numerical Control (CNC) Lathe	12%
Operate RAM-EDM	8%
Operate Wire-EDM	9%

Sample Questions:

If five identical cavities need to be built, a CNC specialist should
  A. machine one at a time
  B. use offset table to do multiple blocks
  C. use vise to hold
  D. use five machines at once

When a tool has been crashed, it is <u>best</u> to
  A. throw it away
  B. report damaged tool
  C. hide in box
  D. blame someone else

Which of the following is **<u>NOT</u>** a V-style taper?
  A. CAT
  B. HSM
  C. BBT
  D. SK

The formula for determining feed rate is
  A. RPM x 3.22
  B. RPM x chip load x # teeth
  C. RPM / chip load x # teeth
  D. pi x radius2

When setting up a boring bar, what should be done to prevent the tip from chipping?
  A. increase the coolant pressure
  B. hone the insert edge
  C. run without coolant
  D. increase the feed rate