Technical Drafting

I. Select the appropriate scale for the given drawing problem according to American National Standards Institute (ANSI) standards.

Tasks Instructions:

Each number to the right refers to a single student/candidate (1-10). Place a										
check (/) in the respective column for the appropriate student/candidate										
number (1-10) if the skills listed below are observed as stated. Leave blank if	1	2	3	4	5	6	7	8	9	10
not observed. Student/candidate will only get credit for the skills they have										
demonstrated.										
Demonstrate proper scaling and dimensions acceptable to industrial										
requirements on each assigned drawing										
Explain the different types of scales utilized in technical drafting and how they										
are used for measurements										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (4)										
	•									
II. Apply sketching knowledge and techniques to solve the problem identifie	d by	the	tech	nnica	al co	mmi	ittee	acc	ordi	ng
to ANSI standards.										
Tasks Instructions:										
	1	2	3	4	5	6	7	8	9	10
		_	,						•	
Identify various types of sketches										
Make freehand drawings to solve problems and convey ideas										

Sketch to correct proportional sizes										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (5)										
	•	•	•	•	•	•	•	•	•	•
III. Apply knowledge of orthographic projections to solve technical drafting	prob	lems	s aco	cord	ing t	o Al	ISI s	stand	dard	s.
Tasks Instructions:										
	1	2	3	4	5	6	7	8	9	10
Explain the theory of Orthographic Projection and how it relates to technical										
drafting										
Draw two-dimensional orthographic projections from given three-dimensional										
views										
Apply the principles of orthographic projection using CAD										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (5)										
IV. Utilize knowledge of auxiliary views to solve technical drafting problems	acc	ordi	ng to) AN	SI s	tand	ards	5.		
Tasks Instructions:										
	1	2	3	4	5	6	7	8	9	10
Describe the true shape and size of incline and oblique surfaces in the form of "helper views" projected upon auxiliary planes										

Demonstrate how and determine when to use single and double auxiliary										
views										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (4)										
	•	•	•	•			•	•		
V. Apply knowledge of sectioning to solve technical drafting problems accor	ding	g to A	ANS	l sta	ndar	ds.				
Tasks Instructions:										
	1	2	3	4	5	6	7	8	9	10
			_					_		
Explain the purpose and theory of sectioning										
Describe the different types of sectioning										
Represent complex interior detail by using sectioning										
Represent different materials through the use of appropriate cross-hatching										
line symbols										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (6)										
					•					
VI. Implement techniques in dimensioning and tolerancing including geome	tric	dime	ensio	oning	g and	d tol	eran	ices	to	
solve technical drafting problems according to ANSI standards.										
Tasks Instructions:										
	1	2	3	Δ	5	6	7	R	٩	10
		-				0		0	3	10

Define basic tolerancing terminology										
Demonstrate correct dimensioning techniques and symbol applications										
Explain the theory of dimensioning										
Identify dimensioning styles and methods										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (6)										
				•				•	•	
VII. Apply knowledge of detail and assembly drawings.										
Tasks Instructions:										
	1	2	2	4	5	6	7	0	٥	10
		2	5	-	5	0	'	0	3	10
Construct a detail drawing showing all necessary information and details										
Construct an assembly drawing showing all necessary information and details										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (4)										
		•	•	•	•	•	•	•	•	
VIII. Demonstrate knowledge of fasteners and hardware.										
Tasks Instructions:										
		1		1						
	1	2	2	Δ	5	6	7	8	٩	10
	1	2	3	4	5	6	7	8	9	10
List the common types of fasteners	1	2	3	4	5	6	7	8	9	10
List the common types of fasteners Draw and label fasteners correctly on production, assembly drawings and	1	2	3	4	5	6	7	8	9	10

parts lists										
Draw threaded fasteners using detailed and schematic representations										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (5)										
	•			•		•		•		
IX. Demonstrate knowledge of presentation/pictorial drawings.										
Tasks Instructions:										
	1	2	2	4	5	6	7	0	0	10
		2	3	4	5	0	/	0	9	10
Explain the three basic types of pictorial drawing										
Make drawings that represent all three dimensions in one single view using all										
three types of pictorials										
Apply the procedures and techniques of drawing pictorial sections and										
exploded views using CAD										
Utilize CAD software to create a computer generated 3-D model and drawing										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (6)										
	•		•	•	•	•	•	•	•	
X. Demonstrate knowledge of construction materials and methods.										
Tasks Instructions:										

Explain the use of materials and specifications for each										
List manufacturing processes typically used today										
Describe the roll quality control plays in manufacturing										
Safety and infection control are adhered to during all aspects of this task.										
The student completed task within the time limited.										
Points earned										
Total possible points (5)										
XI. Apply reference materials and relevant mathematical formulas to assign	ned p	orob	ems	5.						
Tasks Instructions:										
	1	2	3	4	5	6	7	8	9	10
	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems Use reference materials provided by the proctor to effectively solve the	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems Use reference materials provided by the proctor to effectively solve the technical drafting problem assigned to meet ANSI standards	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems Use reference materials provided by the proctor to effectively solve the technical drafting problem assigned to meet ANSI standards <i>Safety and infection control are adhered to during all aspects of this task.</i>	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems Use reference materials provided by the proctor to effectively solve the technical drafting problem assigned to meet ANSI standards <i>Safety and infection control are adhered to during all aspects of this task.</i> <i>The student completed task within the time limited.</i>	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems Use reference materials provided by the proctor to effectively solve the technical drafting problem assigned to meet ANSI standards <i>Safety and infection control are adhered to during all aspects of this task.</i> <i>The student completed task within the time limited.</i> Points earned	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems Use reference materials provided by the proctor to effectively solve the technical drafting problem assigned to meet ANSI standards <i>Safety and infection control are adhered to during all aspects of this task.</i> <i>The student completed task within the time limited.</i> Points earned Total possible points (5)	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems Use reference materials provided by the proctor to effectively solve the technical drafting problem assigned to meet ANSI standards <i>Safety and infection control are adhered to during all aspects of this task.</i> <i>The student completed task within the time limited.</i> Points earned Total possible points (5) Total points earned for all sections (A)	1	2	3	4	5	6	7	8	9	10
Calculate mass properties including but not limited to volume, density and force Calculate volume measurements from given mathematical problems Use reference materials provided by the proctor to effectively solve the technical drafting problem assigned to meet ANSI standards <i>Safety and infection control are adhered to during all aspects of this task.</i> <i>The student completed task within the time limited.</i> Points earned Total possible points (5) Total possible points for all sections (A) Total possible points for all sections (B) 55	1	2	3	4	5	6	7	8	9	10