



Candidate Information

EXAMINATION CONTENT OUTLINE - ARENA RIGGING

Examination Topic	Number of Questions
1. PLANNING AND ENGINEERING	60
A. FORMULAS AND FORCES	35
1. Calculate conversions: SI Imperial (e.g. length, weight)	
2. Apply mathematical formulas, including:	
a. Algebra	
b. Geometry	
c. Trigonometry	
3. Apply general principles of forces, including:	
a. Force / weight	
b. Vectors	
c. Two components of force	
d. Point load	
e. Uniformly distributed load	
f. Indeterminate	
g. Static load	
h. Dynamic load	
i. Shock load	
j. Environmental (e.g. wind, rain, snow, seismic)	
k. Tilting a 2-point object	
4. Apply general principles of rigging, including:	
a. Breaking strength	
b. Determine object weight	
5. Calculate sling length and forces, including:	
a. Single point connection	
b. 2-way bridle	
c. 3-way bridle	
d. High/low bridle	
e. Breast-lines	
B. GENERAL PRINCIPLES OF RIGGING	15
1. Apply general principles of rigging, including:	
a. Design factors	
b. Working load limit	
c. Efficiency (e.g. terminations, materials)	
d. Service factor	
e. D/d ratio	
f. Fleet angle	
g. Center of gravity	
h. Load distribution (e.g. beam formulas, simple span)	
i. Fall protection and rescue design procedures	
j. Risk management (e.g. OSHA)	

C. DRAWING AND SCHEDULES	10
1. Identify and resolve hazardous situations	
2. Conform rigging plot to building load limitations or obstructions	
3. Interpret facility plans (e.g. electrical, HVAC, structural steel)	
4. Interpret show plans	
5. Interpret hanging plot	
6. Generate hanging plot	
7. Perform layout - determine if adequate electrical power is available	
8. Verify assembly / integrity of objects to be lifted using stamped engineering drawings	
9. Verify assembly / integrity of objects to be lifted using allowable load charts	
2. INSTALLATION	45
A. LAYOUT AND ELECTRICAL	10
1. Perform layout, including:	
a. Assign tasks to riggers	
b. Mark floor/grid	
c. Determine safety guidelines (e.g. fall protection, rescue)	
d. Establish communication procedures	
2. General powered system requirements (e.g. dead haul, power assisted), including:	
a. Verify voltage	
b. Verify phasing	
c. Verify electrical connections	
d. Recognize electrical system capacity	
B. RIGGING ATTACHMENTS	20
1. Install rigging attachments (e.g. blocks, sheaves, anchors, points), including:	
a. Assemble rigging attachment hardware (e.g. hitches, pipes, clamps, anchors)	
b. Inspect assembled hardware (e.g. wire rope, slings, terminations)	
c. Attach hardware to overhead structure (e.g. clamps, hitches, eyebolts, blocks)	
d. Attach objects (e.g. lights, sound, scenery)	
e. Install fall protection if required	
2. Attach assembled hardware to drop/hand line with:	
a. Knots (e.g. bowline, clove hitch, figure 8, sheet bend)	
b. Cable puller (e.g. Klein tool)	
c. Industrial carabiners	
3. Attach lifting device to objects to be lifted, including:	
a. Fabricate taildowns	
b. Install attachment hardware	
c. Identify appropriate anchoring locations	
C. OPERATIONS	15
1. Perform lifting/lowering operations, including:	
a. Float objects	
b. Inspect entire system	
c. Perform pre-movement inspection of entire assembly	

d. Assign movement tasks (e.g. spotters, operators, communications)	
e. Establish lifting/lowering zone	
f. Perform bump check	
g. Level objects	
h. Raise/lower objects, periodically rechecking level	
i. Verify trim and load sharing	
j. Bring load to controlled stop	
2. Confirm operation of control system and hoist, including:	
a. Emergency stop mode	
3. Operate system, including:	
a. Raise and lower loads	
b. Mark trim heights	
c. Set limits	
3. MATERIALS AND EQUIPMENT	45
A. PERSONNEL ACCESS EQUIPMENT	15
1. Select what is needed for safe access, including:	
a. Personnel lifts	
b. Ladders	
c. Rope access	
d. Free climbing	
e. Fall protection	
f. Personal protective gear	
B. RIGGING MATERIALS	30
1. Select rigging materials, including:	
a. Support structures (e.g. truss, beams, pipe, platform)	
b. Lifting devices (e.g. hoists, block and fall, lever hoist)	
c. Hardware (e.g. shackles, slings, wire rope)	
d. Manufacturers recommendations	
e. ID components of specific systems	
f. Understand design properties of systems	
2. Curtain/Track, including:	
a. Rig the curtain track for operation	
b. Recognize dynamic load situations	
c. Operate system	
d. Inspect system	
e. Identify components of curtain/track system	
	TOTAL QUESTIONS 150

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