

ARCH 331. Study Guide for Quiz 3

This guide is not providing “answers” for the conceptual questions. It is a list of topical concepts and their application you should be familiar with. It is an *aid* to help prepare for the quiz.

Covers material of Lectures 7, 8, 9 & 10

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| <input type="checkbox"/> Equivalent center of load area | <input type="checkbox"/> Pinned arches and frames |
| <input type="checkbox"/> Equivalent Force Systems | <input type="checkbox"/> Rigid vs. non-rigid pinned frames |
| <input type="checkbox"/> Composite shape | <input type="checkbox"/> Rigid frame behavior |
| <input type="checkbox"/> Centroid, moment of inertia, Q , radius of gyration | <input type="checkbox"/> Internal pin connections |
| <input type="checkbox"/> Negative area method | <input type="checkbox"/> Free Body Diagram rule for force at a pin of a frame |
| <input type="checkbox"/> Parallel axis theorem | <input type="checkbox"/> Two-force bodies and relationship to loads |
| <input type="checkbox"/> Bending & shear stress (beams) | <input type="checkbox"/> Three-force bodies |
| <input type="checkbox"/> Relation of strain to stress & Modulus of Elasticity | <input type="checkbox"/> Moment <i>redistribution</i> for statically indeterminate beams |
| <input type="checkbox"/> Neutral axis, section modulus, Q , extreme fiber | <input type="checkbox"/> Connection types and load/moment transfer |
| <input type="checkbox"/> Stiffness (relative to EI/L through Δ) | <input type="checkbox"/> Types and purpose of bracing |
| <input type="checkbox"/> Maximum bending stress (& location along length and in cross section) | <input type="checkbox"/> Stability |
| <input type="checkbox"/> Maximum shear stress (& location along length and in cross section) | <input type="checkbox"/> Buckling |
| <input type="checkbox"/> Maximum shear stress by beam shape (proper equations) | <input type="checkbox"/> Slenderness |
| <input type="checkbox"/> Economical selection by A or S charts | <input type="checkbox"/> Critical Buckling and Euler's Formula |
| <input type="checkbox"/> Shear flow and shear center | <input type="checkbox"/> Effective length, K & bracing |
| <input type="checkbox"/> Connected area | <input type="checkbox"/> Beam-columns |
| <input type="checkbox"/> Nail capacity and pitch for resisting longitudinal shear | <input type="checkbox"/> Combined bending and compression - <i>interaction</i> |
| <input type="checkbox"/> Statically Determinate vs. Indeterminate | <input type="checkbox"/> $P-\Delta$ effect |
| <input type="checkbox"/> Restrained | <input type="checkbox"/> Eccentricity |
| <input type="checkbox"/> Continuous | <input type="checkbox"/> Load combinations on rigid frames |
| <input type="checkbox"/> Inflection point | <input type="checkbox"/> One-way and two-way slab behavior and support types |
| <input type="checkbox"/> Compound beams with pins | <input type="checkbox"/> Relative joint stiffness for determining effective length (ψ) |
| <input type="checkbox"/> Use of Beam Diagrams and Formulas | |