**History of building construction 2017/2018**

**Lesson 4 Exercises**

*28th March 2018*

**Glossary**

Clinker

Rod

Reinforced concrete

Stirrup

Binder

Cantilever

Flat arch

Soffit

Slab

Flange

a) a substance that makes things stick or mix together in a solid form; b) a long straight piece of wood or metal; c) the hard rough substance left after coal has burnt into a high temperature; d) concrete with metal bars or wires inside to make it stronger; e) the exposed lower surface of a lintel or architrave; f) a reinforcing

device to resist shear and diagonal tension stresses in a beam; g) a beam, or a structural member or surface that projects horizontally beyond its vertical support;

h) One of the principal longitudinal components of a beam or girder which resists tension or compression; i) an arch whose soffit is horizontal; l) The upper part of a reinforced concrete floor, which is carried on beams below.

**True/False**

"Changing industrial conditions have brought reinforced concrete construction within the reach of the average home-maker," Frank Lloyd Wright claims in the article written for the Ladies’ Home Journal, where the **Fireproof House** was published.

*□ True □ False*

John Smeaton discovered a more modern method for producing hydraulic lime for cement.

*□ True □ False*

Ernst L. Ransome patented in 1867 reinforced garden tubes and later reinforced beams

*□ True □ False*

In the Hennebique beam the concrete is relied upon to resist the compressive stresses in the lower part of the beam, while the steel rods resist all tensile stresses in the upper portion.

*□ True □ False*

The lintel arch isn’t a strong construction considering arched system.

*□ True □ False*

The hall of the Doric Pilasters in the Hadrian’s Villa present some different methods of construction, such as lintel brick arches and iron architrave bars.

*□ True □ False*

Portland cement was invented by Joseph Monier in 1850.

*□ True □ False*

In discussing the Imperial Hotel’s earthquake resistance, Wright described the building as a monolithic construction of reinforced concrete, yet one whose technical details gave the structure a flexible elasticity.

*□ True □ False*

Wright believed that the optimal technique for resisting earthquake damage were rigid foundations on long concrete piles.

*□ True □ False*

Near the top of Vermont Avenue sits the Ennis House done by Frank Lloyd Wright in 1924, which dominates its surroundings as a modular masonry structure composed of square concrete bricks.

*□ True □ False*

**A Japanese Inspiration for Frank Lloyd Wright’s Rigid-Core High-Rise Structure**

By M.F.Hearn

*Comprehension*

1) Describe the earthquake-proof architecture that Frank Lloyd Wright conceived

2) The tree and the high-rise earthquake-proof structure: analogy between natural world and architecture

3) The “pincushion” of concrete posts to ground a foundation solution inspired to a French theorist

4) Frank Lloyd Wright took inspiration from the Japanese architecture adopting some features for his projects and buildings, some examples

5) The different purpose of the central spine in traditional architecture, not only against earthquake but as an icon

6) Why did Wright conceal the Japanese inspiration and favoured the examples found in nature to explain his ideas for high-rise structure