CM 250

Construction and Culture

Exam No 2
Test Version __C___

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Part 1 of this Exam is 30 TRUE/FALSE, MATCHING, and MULTIPLE CHOICE questions to be completed in Class on Wednesday, 14 November 2007. There is only one correct answer for each objective question. Please mark your answer on this Exam sheet. Read the questions carefully before answering. You have 25 minutes to complete Part 1.

Part 2 is ***five*** take-home ESSAY Questions due at the **BEGINNING** of Class on Friday, 16 November 2007.

X d 1. Rome developed the most sophisticated lifting devices used in construction until the Renaissance. Both Roman and Renaissance cranes utilized:
(a) a boom pinned to the base of a mast to move loads in/out and left/right relative to the base of the mast.
b. simple "snatch blocks" which reversed the direction of movement but did not provide any mechanical lifting advantage.
c. a large, horizontal wheel powered by animals walking around it.
d. all of the above.

F 2. Compared to construction of the Pantheon, construction of Haggia Sophia went smoothly with no interruptions in the flow of labor and materials.

d 3. Labor used in constructing gothic cathedrals included:
a. skilled masons and carpenters who were paid a wage.
b. semi-skilled teamsters who were paid a wage.
c. unskilled laborers who volunteered their time and efforts.
d. all of the above.

X c 4. Filippo Brunelleschi was:
a. a gardener before designing the dome on the Florence Cathedral.
(b) concerned with safety for his workers constructing the dome.
c. an economically successful man who made "millions" through various business ventures associated with construction.
d. none of the above.

X T 5. English castles were built using an organization of labor similar to that used in constructing Renaissance Cathedrals.

d 6. A series of steps had to be taken before construction of the Panama Canal could be effectively undertaken. These steps included:
a. securing a treaty with a willing country controlling the route along which the canal could be built
b. eradicating diseases which decimated the workers brought in to construct the canal.
c. securing an adequate supply of willing workers.
d. all of the above.

T 7. Ferdinand de Lesseps was a Frenchman who prospered through construction of the Suez Canal but lost his fortune and fame through failure in attempting to construct the Panama Canal.

X T 8. Gothic cathedrals used primarily lead metal roofs to provide fireproofing and stone vaults to provide weather proofing.

d 9. Industrial mill construction was searching for ways to:
a. concentrate as much space within easy transmission of power.
b. construct more fire proof structures.
c. open up the floor space to accommodate more machines.
d. all of the above.

X d 10. Early mill construction was characterized by:
a. a sprawling, one story building to ease the movement of materials.
b. increasingly built of metals and other non-combustible materials.
c. generally located on the edges of large cities for access to labor.
d. all of the above.

T 11. Cast iron first began to be widely used after the introduction of the blast furnace about 1500 AD.

T 12. Gothic Cathedrals were typically built in the middle of small, rural market towns roughly between 1100-1400 AD.

d 13. Ste Maria del Fiore in Florence was:
a. the first building with a two layer-dome brick dome.
b. started in a Gothic style but finished in a Renaissance style.
c. competing with the new "city hall" as the tallest building in town.
d. all of the above.

F 14. The Suez was built by the "Corps of Engineers" and was the first canal to use locks large enough for ocean going ships.

b 15. Characteristics of 19th Century railroad bridges in the U.S. include:
a. being designed by architects trained in Europe to use classical materials and styles of design.
b. requiring relatively advanced mathematical analysis in order to economically size individual structural members.
c. structural solutions borrowed from building construction and adapted to bridge construction.
d. all of the above.

T 16. The Panama Canal was one of the first projects to create a demand for heavy equipment built specifically to meet the needs of construction.

a 17. Canals built during the 18- and early 19th Centuries in England were responding to:
a. the need to move raw materials to factories.
b. the need to move people from homes to work.
c. the need to move ocean freight between continents.
d. none of the above.

T 18. The Crystal Palace was designed by Joseph Paxton, a gardener and commoner competing against educated and elite architects and engineers.

T 19. The "jack arch" was an attempt to balance mill construction between being strong enough to withstand heavy industrial loading and making construction fireproof.

d 20. Early industrial mill towns were characterized by:
a. being built within walking distance around the mill.
b. located along rivers, typically at places with rapids.
c. attempting to bring nature into residential areas.
d. all of the above.

Matching Questions. Use each answer only once.

a. St Paul's Cathedral
b. Haggia Sophia
c. St Peter's Cathedral
d. Pantheon

b 21. An early Christian Basilica, which features a large dome built of relatively shallow brick arches.

a 22. A building with a three-layered dome using a very thin brick dome as structural support for an inner and outer dome of two different shapes.

c 23. A building with a two-layered dome designed using the catenary curve as a model for its shape.

d 24. The largest concrete dome built until the 20th Century and which used coffers resembling ribs.

End of matching questions.

T 25. English castles were effectively fortified against sieges until the invention of canons, which effectively ended the usefulness of castles for defense,

T 26. For 1,000 years after the fall of Rome, Europe was characterized by anarchy and a reduction in the standard of living known during Roman times.

X c 27. The Crystal Palace in London used which of the following materials in its construction.
a. Concrete for the main structural support.
b. Wooden columns and beams.
c. Cast iron for gutters to collect rain water.
d. None of the above.

d 28. Engineers began to emerge as a profession separate from architects:
a. during the first half of the 19th Century in the US.
b. Because of the need by railroads for more efficiently designed bridges.
c. Because of the advances in theoretical thinking about math and physics 18th Century Europe.
d. All of the above

T 29. The Renaissance was a time of replacing belief, typical of the Gothic period, with reason and thought.

T 30. The Bridge at Coalbrook Dale was the first example of a manufacturer of cast iron demonstrating construction uses for their material.