CE2330 – BUILDING MATERIALS AND CONSTRUCTION
FINAL EXAMINATION

29-11-2011

TIME: 3 Hours
MAX MARKS: 75

Instructions: Answers must be BRIEF, LEGIBLE and to the POINT

1. What is the CLADDING MATERIAL used by Frank Gehry for his museum project?

2. What is the difference between UNIFORM SETTLEMENT and DIFFERENTIAL SETTLEMENT?

3. What is the difference between a BEARING PILE and a FRICITION PILE?

4. What is difference between a DRIVEN PILE and a BORED PILE?

5. What is a RAKER PILE, when is it used?

6. What is PORTLAND POZZOLANA CEMENT?

7. How is the 28 day compressive strength of concrete determined
   a) In India
   b) In the US

8. Why there are RIBS and PROJECTIONS provided on the surface of the REINFORCING BARS?

9. Explain with a sketch “PRE-TENSIONING”

10. How will a FLAT PLATE fall?

11. WHAT must be added to concrete to reduce the water content and increase workability?

12. What is the DIFFERENCE between a one-way slab and a two-way slab? (Provide sketches)

13. What are the 3 BASIC SYSTEMS of pre-casting?

14. Sketch (a) HOLLOW CORE SLAB (b) DOUBLE TEE SLAB

15. In the NBC, under Part 4, mention any 4 CATEGORIES OF BUILDINGS

16. The PH VALUE of water used for concrete should be:
   a. Alkaline
   b. Acidic

17. What are the 3 GROUPS of concrete based on strength consideration?

18. What are the 5 EXPOSURE conditions in IS: 456 for reinforced concrete structures?

19. What is the MINIMUM PERIOD OF TIME (in days) before striking of formwork for beams?
35. A diagram of dimensions of management of Construction is shown below. Fill any 2 blocks

36. State any 2 PROJECT MANAGEMENT Tools

37. Draw the schematic sketch of CRUDE OIL REFINING OPERATIONS and show where BITUMEN is produced?

38. What are the various methods of BITUMEN PRODUCTION from the vacuum residue?

39. What is the DIFFERENCE between a Bull dozer and Angle dozer?

40. What is the DIFFERENCE between Backhoe and a Shovel (No sketch required)

41. What are 3 INDEPENDENT MOVEMENTS possible with a crane?

42. Give a BLOCK DIAGRAM for the production of concrete (from production to completion of structural component)

43. Mention 2 TYPES OF ROLLERS used for compaction of soils

44. What is GLULAM, what is its advantage over normal wood?

45. What determines the "EASIEST PATH" for crack propagation in stone masonry?

46. What is the DIFFERENCE between a Banded Brick Wall and a Brick Faced Wall?

47. A vertical brick wall fixed to the ground is stronger, when loaded (tick the correct one)
   a. in-plane
      or
   b. out-of-plane

48. How does an arch primarily TRANSFER LOAD to the foundation?
67. A Chinese building collapsed (which we discussed in the class). What could have been done to avoid the failure?

68. What is BASE ISOLATION?

69. Mention 2 methods of FIRE-PROOFING steel structures

70. How does CORROSION occur in reinforced concrete?

71. What is the difference between mild steel and high strength bars?

72. Why architects PREFER flat plate construction for buildings?

73. What is PROGRESSIVE collapse?

74. Why very LONG COLUMNS cannot be used in structures?

75. Mention 3 methods of CONNECTING two L shaped columns