

**CST - Construction Technology
and R.C.C**

T021

**Friday, 01/11/2013
8:30 - 11:30 AM**

WORKFORCE DEVELOPMENT AUTHORITY



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**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2013,
TECHNICAL AND PROFESSIONAL TRADES**

EXAM TITLE: Construction Technology and R.C.C

OPTION: Construction (CST)

DURATION: 3hours

INSTRUCTIONS:

The paper contains **three (3)** parts:

Part I: Fifteen **(15)** questions, **all compulsory** **55marks**

Part II: Five **(5)** questions, **Choose any three (3);** **30marks**

Part III: Three **(3)** questions, **Choose any one (1);** **15marks**

The use of calculator is not necessary

Part I: Attempt all the 15 Questions (compulsory) 55marks

01. Give qualities that indicate the usefulness of aggregate particles to the construction industry. **7marks**
02. Give four (4) basic chemicals compounds which compose Portland cements. **4marks**
03. Compressive strength is a very important property of hardened concrete.
a) What do you understand by Compressive strength?
b) Calculate Compressive strength if the cylinder diameter is 6 inch and load at failure is 115,000 lb. **4marks**
04. What do you understand by "setting out "in construction project? How do we do it? Give all steps that should be followed. **4marks**
05. Give three (3) examples of deep foundation. **3marks**
06. What is the function of walls? **4marks**
07. Enumerate all basic materials used in construction project. **5marks**
08. Give at least five (5) main functions that all primary construction materials must perform. **5marks**
09. In which types the reinforced concrete floors can be classified? **5marks**
10. Give (in details) the classification of stairs. **3marks**
11. Give the formula (rule) used when determining rise and going of stairs. **2marks**
12. Cements may be classified into five (5) groups. Enumerate them. **5marks**
13. What do you understand by "concrete masonry"? **1mark**
14. Give the two (2) essential components of bricks masonry. **2marks**
15. What do you understand by "mortar"? **1mark**

Part II: Choose and Answer any three questions 30marks

16. What are the most important properties to be considered in selecting aggregate for a particular application? **10marks**
17. a) Enumerate all important properties of concrete which govern the design of a concrete mix. **4marks**
b) Disintegration and decay of concrete may be due to which reasons? **5marks**

c) The water required for chemical reactions in concrete is about which percentage of weight of cement? **1mark**

18. Find the number of clays bricks required for a wall of height 10 ft and length 25 foot. Use modular bricks of size 4*2.66*8 in. (Provide 5% allowance for wastage). **10marks**

19. a) Give at least 6 important properties of concrete. **6marks**

b) What is the purpose of using reinforced steel in concrete? **4marks**

20. a) How do we prepare a surface in masonry to be painted? **4marks**

b) Draw a section of a reinforced rectangular concrete beam (show stresses elastic and section uncracked at very small loads). **6marks**

Part III: Choose and Answer any One (1) question. 15marks

21. Give all points that should be kept in mind while supervising the stone masonry work. **15marks**

22. Enumerate at least 15 tools that are used for stone masonry dressing. **15marks**

23. Give all precautions that should be taken while supervising a brick masonry construction. **15marks**

percentage of weight of cement?
18. Find the number of clay bricks required for a wall of height 10 ft and length 100 ft. Use mortar of size 4 1/2" x 8" in. Provide 5% allowance for wastage.
19. What is the purpose of providing a damp proof course?
20. How do you distinguish between a wall and a partition wall?
21. Draw a section of a reinforced concrete slab and show the reinforcement details.

Part III: Choose any One (1) question. (10 marks)

22. Explain the importance of a good foundation.
23. Describe the different types of foundations.
24. What are the factors to be considered in the design of a foundation?
25. Explain the concept of a bearing capacity of soil.
26. Describe the different types of soil tests.
27. Explain the importance of a good drainage system.
28. Describe the different types of drainage systems.
29. What are the factors to be considered in the design of a drainage system?
30. Explain the concept of a water table.

31. Describe the different types of roof trusses.
32. Explain the importance of a good roof truss.
33. Describe the different types of roof trusses.
34. Explain the importance of a good roof truss.
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36. Explain the importance of a good roof truss.