ADVANCED LEVEL NATIONAL EXAMINATIONS, 2012, TECHNICAL AND PROFESSIONAL TRADES

EXAM TITLE: CONSTRUCTION TECHNOLOGY
OPTION: CONSTRUCTION (CST)
DURATION: 3 HOURS

INSTRUCTIONS:
The paper consists of Three (3) Sections:

Section A: All 15 questions are compulsory. 50 marks

Section B: This section has two parts (Part 1 & Part 2)
   B-Part-1, Answer any FOUR questions 20 marks
   B-Part-2, Answer any THREE questions 15 marks

Section C: Answer ONE question 15 marks
SECTION A: ALL QUESTIONS ARE COMPULSORY.  

01. List any four types of artificial foundations.  

02. State four types of walls according to loading.  

03. Sketch the following masonry symbols clearly:  
   a) Brickwork section  
   b) Cavity wall section  
   c) Blockwork section  
   d) Stone section  

04. Discuss the use of the following hand tools as used in site preparation.  
   a) Pick  
   b) Axe  
   c) Spade  
   d) Sledgehammer  

05. Explain the purpose of the following measuring tools in construction works  
   a) Tape measure  
   b) Builders level  
   c) Plumb-bob  
   d) Builders square  

06. Name four things that can be cleared from a site during site preparation.  

07. List four things that can be identified from the tests on the soil from a trial hole.  

08. Describe four steps/stages, how you can make profile boards for setting out and how you can use them to locate positions of walls and foundation.  

09. State clearly four types of excavations that can be done on a building site for a small building.
10. (a) Explain timbering in excavation works.  
(b) Differentiate natural from artificial foundations.  
(c) What is the main purpose of a bulldozer in excavation?  
1mark  
2marks  
1mark  
11. What is R.C.C in full?  
2marks  
12. Name any four Materials used in RCC.  
2marks  
13. List any four structural parts of a simple building which can be constructed in Reinforced concrete.  
2marks  
14. Explain the importance of compacting concrete.  
2marks  
15. State the main structural purpose of using steel reinforcement bars in concrete.  
2marks  

SECTION B- PART-I. CHOOSE AND ANSWER ANY FOUR 4 QUESTIONS  
20marks  

16. Highlight five facilities found on a healthy construction site to help in hygiene.  
5marks  
17. List at-least five first-aid measures taken to help a person suffering from an electric shock on site.  
5marks  
18. Sketch clearly the following working drawing symbols.  
5marks  
a) Mass concrete  
b) Reinforced concrete  
c) Cement or sand  
d) Earth  
e) Hardcore  
19. Give the meaning of the following bricklaying works:  
a) Quoin  
b) Closer  
c) Bed joint  
d) Arris  
e) Bat  
5marks  
20. Highlight five characteristics of a good external wall.  
5marks
SECTION B-PART-2. CHOOSE AND ANSWER ANY THREE (3) QUESTIONS. 15marks

21. Mention five purposes of the distance between reinforcement bars and the concrete surface call cover. 5marks

22. Describe five precautions taken on site to ensure cement is in excellent/good condition. 5marks

23. Show the steps followed when conducting a slump test on concrete. 5marks

24. List any five tools, equipment or instrument used in Reinforced concrete construction. 5marks

25. (a). Explain the meaning of the following terms;
   i. Modulus of Elasticity
   ii. Strain
   iii. Stress 3marks

   (b). Sketch two bars, use arrows to show the direction of forces and demonstrate;
   i. Bar in tension
   ii. Bar in compression 2marks

SECTION C- CHOOSE AND ANSWER ANY ONE 1 QUESTION: 15marks

26. (a) Explain the meaning of a building site. 1mark

   (b) Describe seven skills, experiences or technical knowledge which a technician in construction works should have when working for design or building team. 14marks

27. Explain the meaning and function of the following construction team members: Main Contractor, Estimator, Surveyor, Contract Supervisor, Site Agent, General Foremen, Trades Foreman, Trades People, Apprentices, and Labourers. 15marks

28. Show clearly ten things to be investigated by a surveyor on a building site before the beginning of works. 15marks