



**PROGRAM** : NATIONAL DIPLOMA  
*BUILDING*

**SUBJECT** : **CONSTRUCTION TECHNOLOGY 3**

**CODE** : **CONT 331**

**DATE** : SUMMER SSA EXAMINATION 2015  
10 DECEMBER 2015

**DURATION** : (SESSION 1) 08:00 - 12:00

**WEIGHT** : 40 : 60

**TOTAL MARKS** : 130

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**ASSESSOR** : DR JN AGUMBA

**MODERATOR** : Ms. M LASERSON EXAM CODE 164X

**NUMBER OF PAGES** : 3 PAGES

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**INSTRUCTIONS** : ANSWER ALL THE QUESTIONS IN **SEQUENCE**;  
: ALL DRAWINGS MUST BE WELL ANNOTATED; AND  
: USE A PENCIL WHEN DRAWING;

**REQUIREMENTS** : ONE ANSWER SHEET

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## **INSTRUCTIONS TO STUDENTS**

PLEASE ANSWER ALL QUESTIONS IN **SEQUENCE**.

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### **QUESTION 1**

- 1.1 Outline three factors that will vary the actual pressure at the base of column formwork when casting concrete (3)
  - 1.2 Describe the types of soakaways that can be used in a drainage system (4)
  - 1.3 Discuss and illustrate with drawings the structural theories of designing portal frames (9)
  - 1.4 Describe the types of drainage system that can be used in a housing project (9)
- [25]**
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### **QUESTION 2**

- 2.1 List the standard thicknesses of an Alucobond composite panel showing the calculations (2)
  - 2.2 Draw a section through a vertical bulkhead (8)
  - 2.3 Outline four requirements of Alucobond composite panels to fulfill their requirements (4)
  - 2.4 Outline and draw three jointing techniques of Alucobond composite panel products (6)
- [20]**
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### **QUESTION 3**

- 3.1 Draw a cross-section through a foundation formwork for casting concrete in the trench and state the reason for using it. (5)
  - 3.2 State the different types of reinforcement bars used and list the range of sizes that are manufactured in the industry (8)
- [13]**
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### **QUESTION 4**

- 4.1 Draw a well-annotated 600mm x 600mm T 38 ceiling grid layout on a ceiling layout of 3600mm x 1200mm (5)
  - 4.2 Draw a typical section through a multi-storey building with rainscreen cladding (7)
- [12]**

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**QUESTION 5**

- 5.1 Outline four requirements of formwork to enable it to fulfill its function. (4)
- 5.2 Draw a section through a cantilever retaining wall indicating all the terminologies (9)
- 5.3 Describe two types of defects that can occur on a finished concrete surface and outline a method of alleviating them (6)
- [19]**
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**QUESTION 6**

- 6.1 Draw a well annotated detailed section through the base connection of a structural steel structure (8)
- 6.2 Describe the coding configuration below 4Y2001 (4)
- 6.3 Describe how to assemble timber cladding on a structural backing and illustrate using a well annotated drawing (8)
- [20]**
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**QUESTION 7**

- 7.1 Discuss using suitable drawings the installation of driven in-situ OR cast in place piles in a construction project and where they are used (8)
- 7.2 Draw and fully annotate a filled joint as used in cladding joints in framed structures (5)
- 7.3 Draw a detailed typical timber formwork to be used for an in-situ reinforced concrete beam lintel to a door opening (8)
- [21]**
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**TOTAL = 130**