UNIVERSITY OF JOHANNESBURG

PROGRAM	:	NATIONAL DIPLOMA *BUILDING*
SUBJECT	:	**CONSTRUCTION TECHNOLOGY 3**
CODE	:	**CONT 331**
DATE	:	DECEMBER EXAMINATION 4TH DECEMBER 2014
DURATION	:	(SESSION 1) 08:00 – 12:00
WEIGHT	:	40 : 60
TOTAL MARKS	:	130

ASSESSOR	:	DR JN AGUMBA
MODERATOR	:	Ms. M LASERSON
NUMBER OF PAGES	:	3 PAGES

EXAM CODE 164X

INSTRUCTIONS	:	ANSWER ALL THE QUESTIONS IN **SEQUENCE** ALL DRAWINGS MUST BE WELL ANNOTATED.
REQUIREMENTS	:	ONE ANSWER SHEET

INSTRUCTIONS TO STUDENTS

PLEASE ANSWER ALL QUESTIONS IN **SEQUENCE**.

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]

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]

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]

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]

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]

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]

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]

TOTAL = 130