



PROGRAM : NATIONAL DIPLOMA
ENGINEERING: BUILDING

SUBJECT : **CONSTRUCTION TECHNOLOGY 1B**

CODE : **FCOT11B**

DATE : NOVEMBER EXAMINATION
01 NOVEMBER 2014

DURATION : (SESSION 1) 08:30 - 11:30

WEIGHT : 40: 60

TOTAL MARKS : 75

EXAMINER : O.A. BALOGUN

MODERATOR : DR. JN AGUMBA File Number 2298

NUMBER OF PAGES : 6 PAGES

REQUIREMENTS : A3 DRAWING SHEETS
EXAMINATION BOOKLET

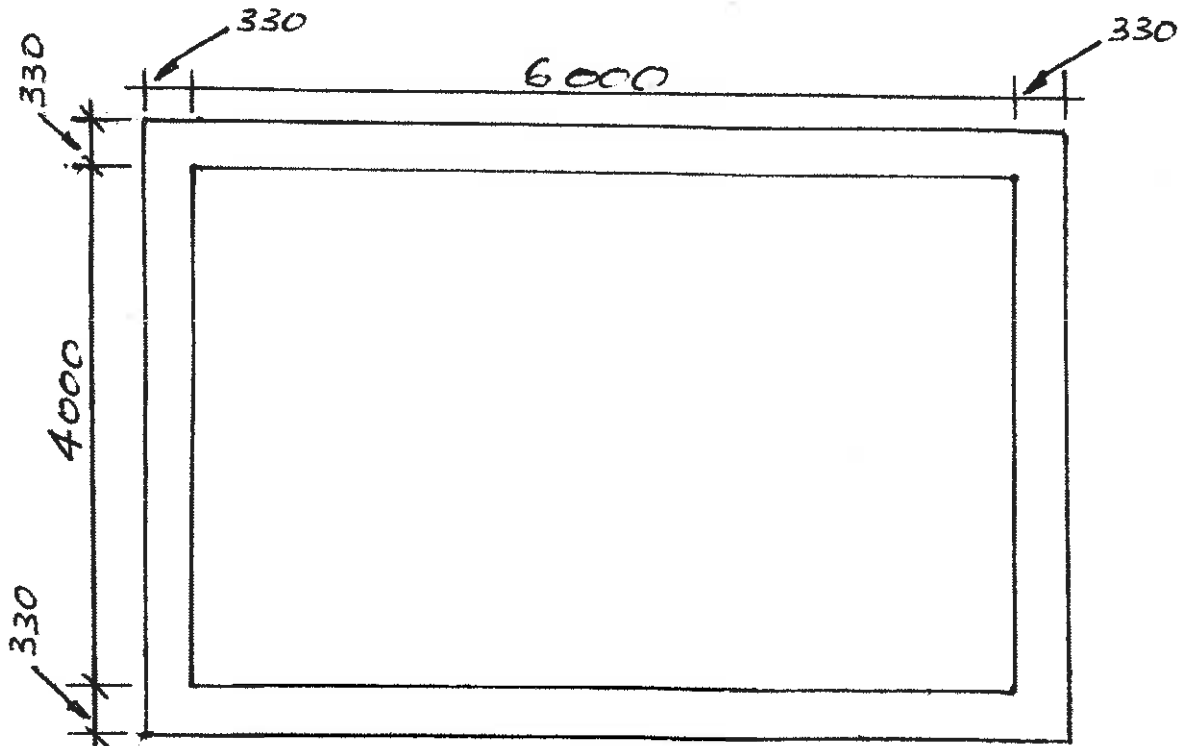
QUESTION 1

The accompanying plan shows part of a building that has a suspended timber floor. To a scale of 1:20, draw a **plan** of this room showing:

- One-and-a-half brick solid external walls up to the wall plates, with the wall continuing from wall plate height as a one-brick wall.
- A 220mm x 220mm sleeper pier, supported by a 500mm x 500mm x 220mm concrete pad foundation.
- A 228mm x 76mm bearer, placed across the breadth of the building, is supported by the sleeper pier in the centre of the floor and built 220mm into the wall at its ends.
- 152mm x 50mm common joists supported by the bearer in their centres, and rest on 114mm x 38mm wall plates.

Do not show the cleats attaching the joists to the longitudinal walls.

- 100mm x 20mm tongue-and-groove floor boards.
- Do not draw a borderline, but print the full title and scale of the drawing. [18]



QUESTION 2

State three important guidelines to be followed when gypsum ceiling boards are being fixed.

[3]

QUESTION 3

When you fix brandering to the tie beams of roof trusses, you may encounter gaps between the tie beams and the brandering (branders). If the gap between these members is 15mm, draw a longitudinal vertical sectional sketch through a brander to show how to overcome the problem. Show the gap between the 114mm x 38mm rafter and the 38mm x 38mm cleat. Use a scale of 1:5.

[5]

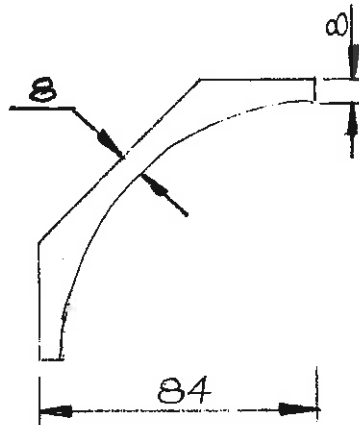
QUESTION 4

By using the dimensions of the cove gypsum cornice given in the accompanying sketch, draw a detail of a **nailed** gypsum cove cornice.

Show one 20mm clout nail going through the 6,4mm thick ceiling board and one 32mm clout nail going through the 6,4mm thick ceiling board as well as the 38mm x 38mm brander. Also show one nail going into the wall.

Annotate all the mentioned components, except for the nails. Do not dimension the drawing, but print the full title and **scale. Use a scale of 1:2.**

[6]



QUESTION 5

5.1 Name the three types of glass used in ordinary buildings. (3)

5.2 State the thicknesses of clear sheet glass. (6)

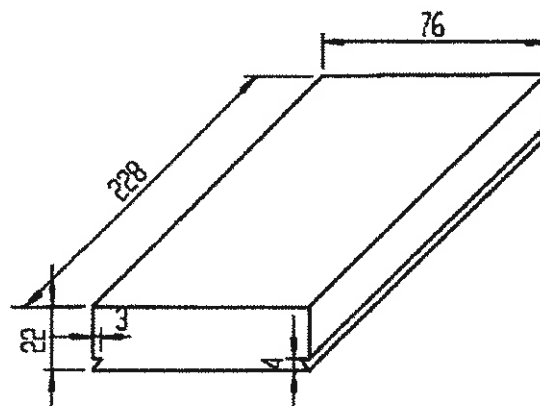
[9]

QUESTION 6

Use the dimensions of the hardwood floor tile given below to draw a **top view** of a section of floor laid in basket pattern. The dimensions of the section of flooring must be 684mm x 684mm.

Use a scale 1:10.

[6]



QUESTION 7

State the causes of the following paint failures:

- 7.1- Blistering (1)
 - 7.2 - Alligatoring (3)
 - 7.3 - Cracking (2)
 - 7.4 - Flaking (3)
 - 7.5 - Failure to dry properly (1)
 - 7.6 - Chalking (1)
 - 7.7 - Fading (1)
- [12]

QUESTION 8

Draw to a scale 1:10 an isometric drawing of a 190mm thick boundary wall on a strip foundation, which includes a pier with projections **on both sides** of the wall. The actual wall is to be 1,8m high, but only draw the wall 450mm high. The depth (thickness) of the foundation is to be 220mm.

Use the information given in the table on page 6.

Do not dimension the drawing, but print the following title and scale centrally below the drawing in 5mm high letters:

ISOMETRIC DRAWING OF A GARDEN WALL WITH PIERS PROJECTING ON BOTH
SIDES

SCALE 1:10

[10]

QUESTION 9

Draw to a scale 1:5 a vertical section through a cast-in-situ edge restraint with an angle of 30°, where the edge restraint is covered by lawn. The paving blocks are 200mm long and 60mm thick, placed on a 25mm thick sand layer. Show and annotate all the details mentioned. Add the following title and scale:

PAVING WITH A CAST – IN –SITU EDGE RESTRAINT

SCALE 1:5

[6]

INFORMATION

PART 2, SECTION 3, TABLE 17

Free standing walls (solid units)

NOMINAL WALL THICKNESS (T) (mm)	MAXIMUM HEIGHT (H) (m)	NOMINAL DIMENSIONS OF PIERS (OVERALL DEPTH x WIDTH D x W) (mm)	MAXIMUM PIER SPACING (CENTRE TO CENTRE; S) (m)
PIERS PROJECTING ON ONE SIDE			
90	1,4	290 x 290	1,4
90	1,5	390 x 290	1,6
90	1,7	490 x 290	1,6
110	1,5	330 x 330	1,8
110	1,5	440 x 330	1,8
110	1,9	550 x 330	2,0
140	1,7	440 x 440	2,2
140	1,8	590 x 390	2,5
190	2,0	590 x 390	2,8
220	2,3	660 x 440	3,2
PIERS PROJECTING ON BOTH SIDES			
90	1,5	490 x 290	1,4
110	1,6	550 x 330	1,8
140	1,6	440 x 440	2,2
190	1,8	590 x 390	2,8
220	2,1	660 x 440	3,2