



PROGRAM : NATIONAL DIPLOMA
ENGINEERING: BUILDING

SUBJECT : **CONSTRUCTION TECHNOLOGY 1**

CODE : **CONT111**

DATE : DECEMBER EXAMINATION
04 DECEMBER 2014

DURATION : (SESSION 1) 08:00 – 11:00

WEIGHT : 40: 60

TOTAL MARKS : 72

EXAMINER : O.A. BALOGUN

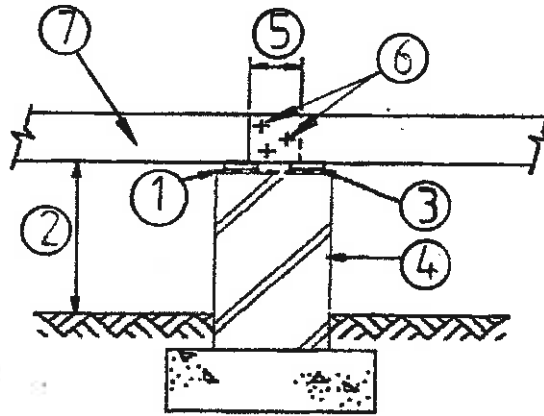
MODERATOR : DR JN. AGUMBA 2297

NUMBER OF PAGES : 6 PAGES

REQUIREMENTS : A3 DRAWING SHEETS
EXAMINATION BOOKLET

QUESTION 1

There are regulations that carpenters must observe when suspended wooden floors are constructed. The sketch below shows a vertical section through a sleeper pier on which a floor joist is joined.



In your answer book, simply fill in the given number and name of the element or dimension that the arrowhead is pointing to.

[7]

QUESTION 2

Using the given plan of a suspended timber floor, draw to a scale 1:10 the vertical section indicated by A-A.

Draw and annotate the following details:

- A 730 x 300 strip foundation for the external wall
- A 330 foundation wall built with face bricks
- A 330 x 150 air brick to ventilate the under-floor space
- A 220 external wall built with face bricks
- DPC above the air brick
- Ground level, 150 above the top surfaces of the foundations
- A 228 x 76 bearer, with a clearance of 488 above ground level

- A 114 x 38 cleat, connecting the first joist to the external wall
- 152 x 50 floor joists, spaced apart at the maximum allowable spacing
- 100 x 20 tongue-and-groove floor boards
- A one-brick sleeper pier built in stock bricks on top of a 600 x 600 x 200 pad foundation
- Ant guard built into the sleeper pier, one course below the bearer
- DPC, built into the sleeper pier, one course below the bearer

[18]

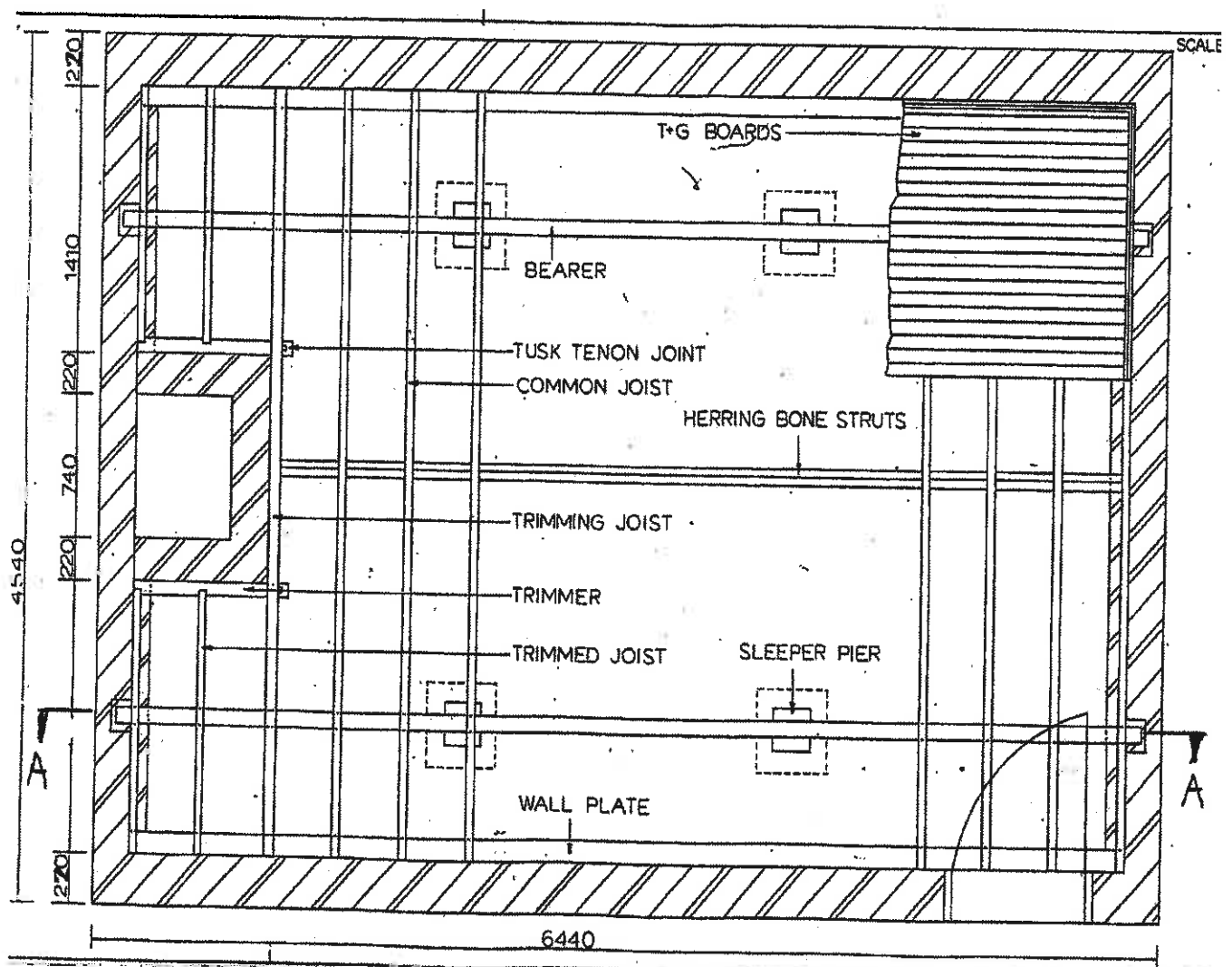


FIGURE 1

QUESTION 3

State what type and length of nails are used to connect 6,4mm thick gypsum ceiling boards to the branders, and why this type must be used. [3]

QUESTION 4

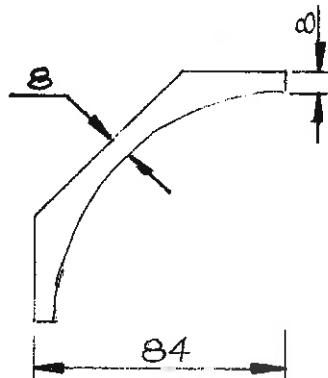
State three important guidelines to be followed when gypsum ceiling boards are being fixed. [3]

QUESTION 5

Explain how wood mosaic flooring is laid. You must provide 5 facts. [5]

QUESTION 6

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 38 x 38 brander. Also show one nail going into the wall.

Annotate all the components mentioned, except for the nails. Do not dimension the drawing, but print the full title and scale. Use a scale of 1:2. [6]

QUESTION 7

Draw a longitudinal vertical section through a ceiling joint that is covered with a 38 x 6mm wood cover strip. Clearly show and annotate the 114 x 38 tie beam, a 38 x 38 brander, as well as the 6,4mm gypsum ceiling boards. Use a scale of 1:5. [5]

QUESTION 8

Draw to a scale 1:5 a vertical section through a valley gutter for a slate tiled roof. The rafters support a 250 mm wide metal gutter, which is placed on 600mm wide valley underlay.

SPECIFICATIONS:

- Slope of valley rafters 30°
 - Size of valley rafters 114 x 38
 - Size of ordinary battens 38 x 38
 - Size of tilting battens 50 x 38
 - The roof underlay passes over the tilting battens to discharge into the gutter. [8]
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QUESTION 9

State four advantages of using PVC flooring (Marley tiles). [4]

QUESTION 10

Draw to a scale 1:5, the correct method of extending a 114 x 38 wall plate longitudinally. Clearly indicate the required length of the splice. Show the positions of the nails. [5]

QUESTION 11

Draw to a scale 1:10 an isometric drawing of a 90mm thick wall on a 200mm thick strip foundation, which includes a pier, which projects on one side only. The actual height of the wall is to be 1,7m, but only draw the wall 350mm high.

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 A PIER PROJECTING ON ONE
SIDE

SCALE 1:10

[8]

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