

073206T4BLD
BUILDING TECHNICIAN LEVEL 6
CON/OS/BT/CR/01/6
PRODUCE BUILDING DRAWINGS
Nov. /Dec. 2022



THE KENYA NATIONAL EXAMINATIONS COUNCIL

WRITTEN ASSESSMENT

Time: 3 hours

INSTRUCTIONS TO CANDIDATES

Maximum marks for each question are indicated in brackets ().

*This paper consists of **TWO** sections: A and B.*

Answer questions as per instructions in each section.

You are provided with a separate answer booklet.

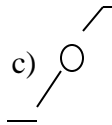
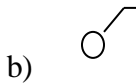
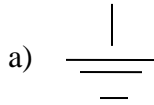
This paper consists of ELEVEN (11) printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing

SECTION A: (40 MARKS)

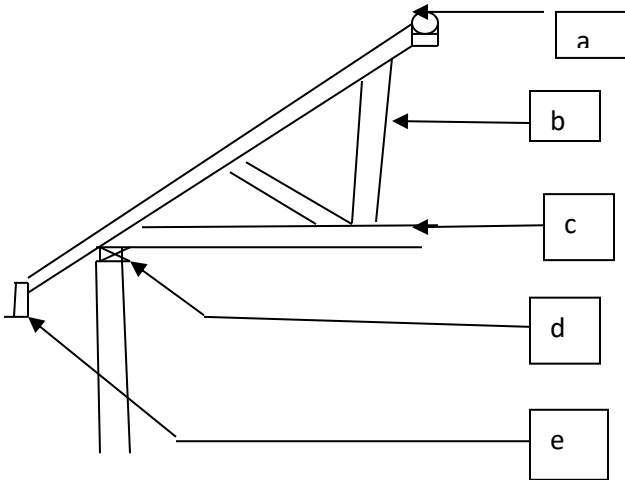
Attempt all questions in this section. Each question carries marks as indicated in the bracket

1. State **two** SI units used in dimensioning drawings (2 marks)
2. Give **two** codes that act as reference points when drawing buildings (2 marks)
3. Name the following electrical symbol (4 marks)



4. State **three** types of wires used during electrical transmissions (3 marks)
5. Identify any **four** paper sizes used to produce building drawings (2 marks)
6. Sketch a line diagram to show direct cold-water supply (6 marks)
7. Identify **three** elements making up fire triangle (3 marks)
8. Sketch the layout of single stack system of drainage (8 marks)
9. Show a section through a dog legged stair and illustrate any **five** of the following (5 marks)
 - i. Headroom
 - ii. Landing
 - iii. Risers
 - iv. Treads
 - v. Effective span
 - vi. Support to slab weight
 - vii. foundation

10. State **one** function of each of the following roof members named a,b, c ,d and e in figure below
(5 marks)



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SECTION B: (60 MARKS)

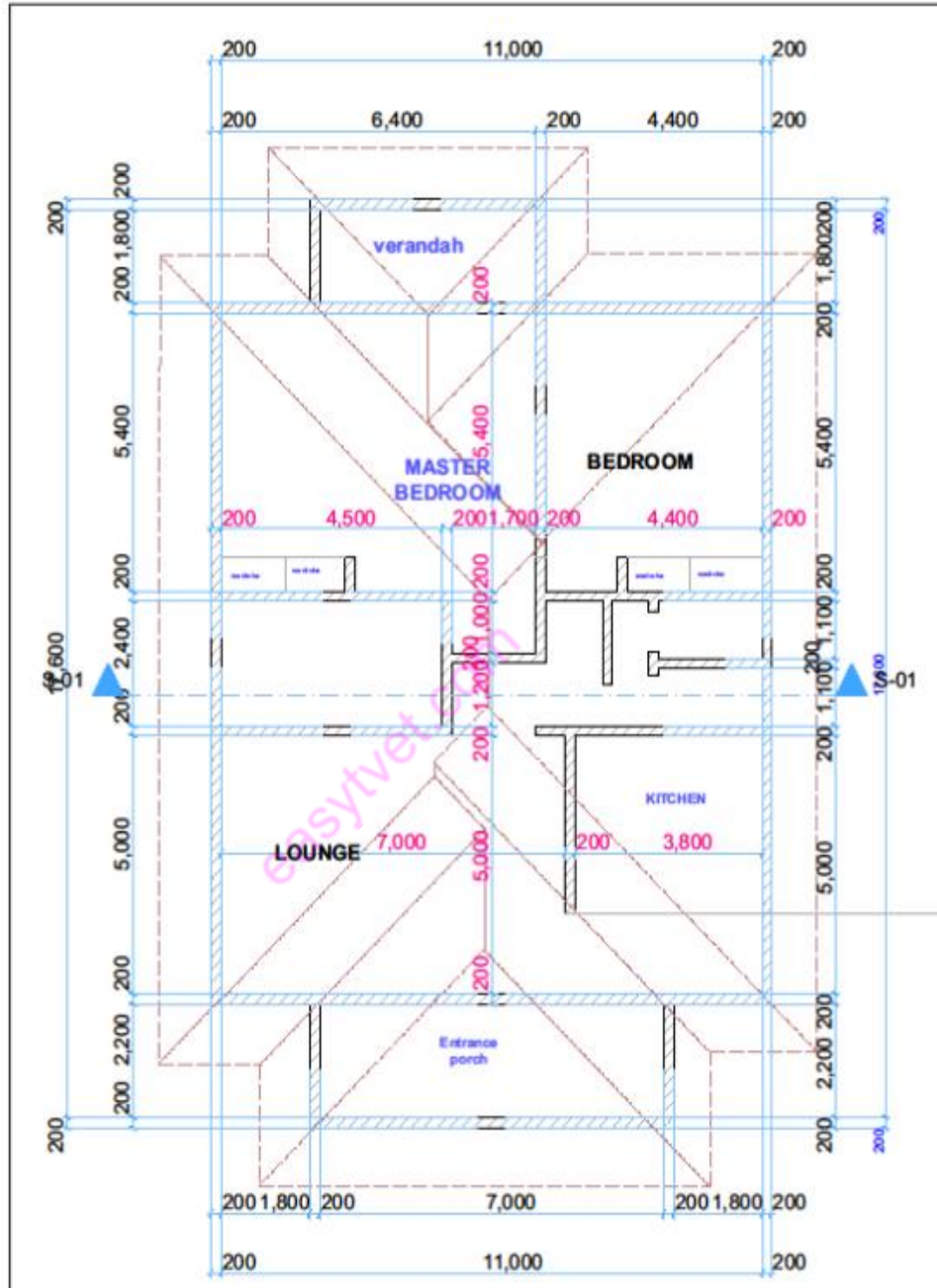
(Attempt question 11 and any other TWO questions in this section)

11. The drawing shown below shows the plan of a residential building. To a scale of 1: 25, draw

- a. Section X- X showing all details from roof cap to normal strip foundation below

- b. An elevation looking at the direction of arrow (20 marks)

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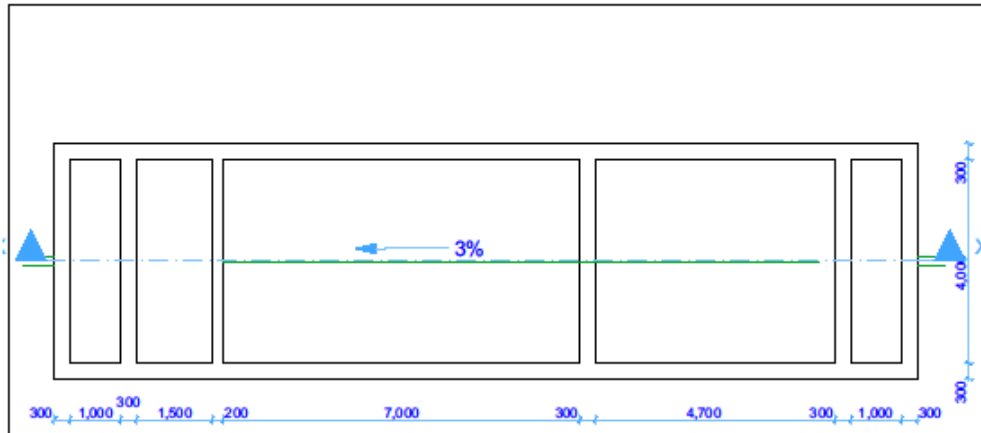


12. Draw section X-X of the septic tank given in Figure 2 using the following data;

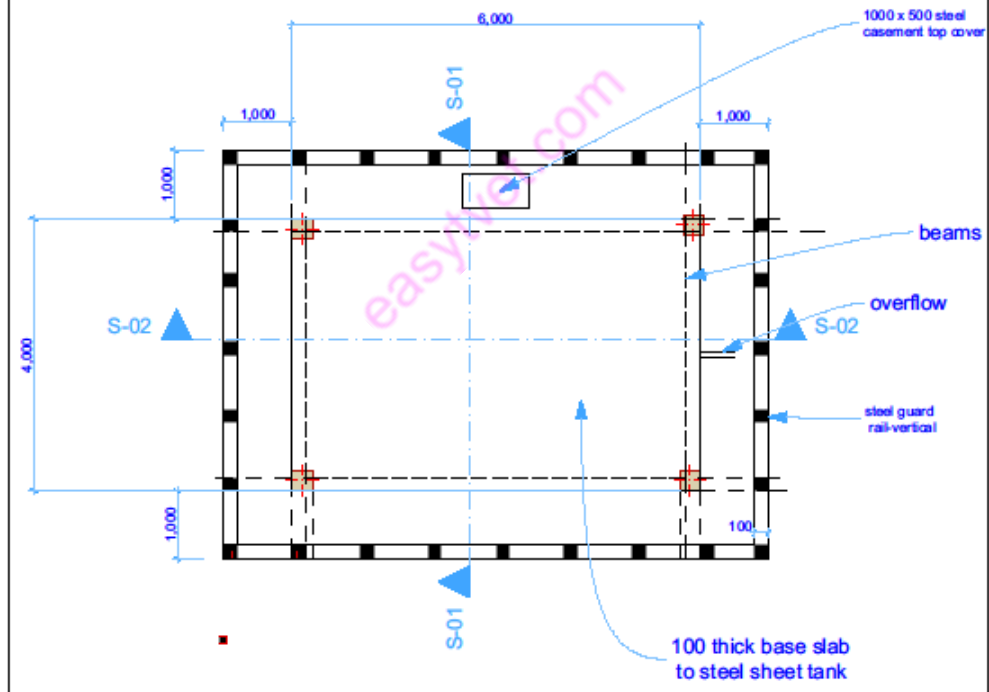
- a. 200 thick baffle walls
- b. 300 thick hardcore bed
- c. 50mm blinding to bed
- d. 1200 x 1000 inlet channel-1300 mm high
- e. Channel thickness = 300
- f. Outlet pit- 1000mm deep x 1500 mm wide
- g. Slope 3 % at inlet towards outlet

(20 marks)

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PLAN FIGURE 2



PLAN FIGURE 3

13. Figure 3 above shows the plan of an elevated steel tank mounted on a 100 thick RC SLAB.

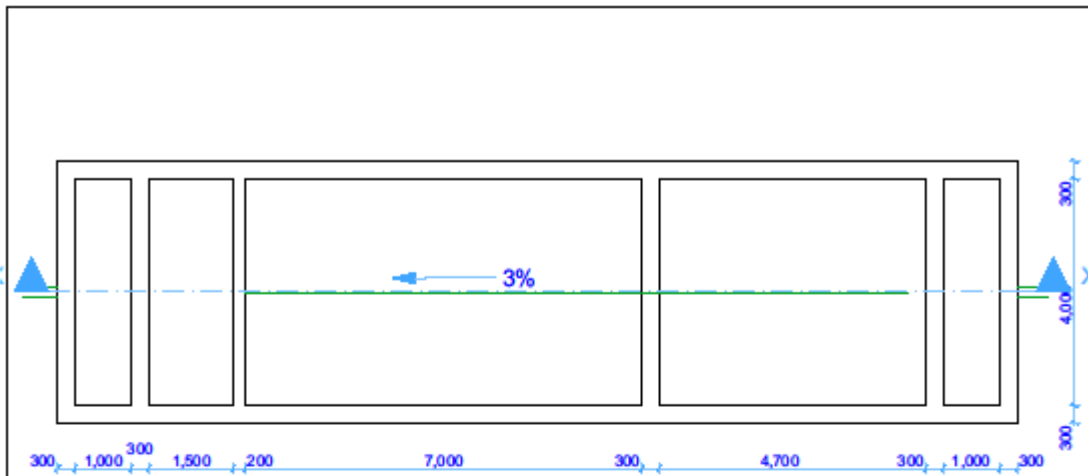
Using a scale of 1: 100 draw a reinforced detail of section S01-S01 given the following details

- a. Height slab from ground level = 14000mm
- b. Height of guard rail = 1500
- c. Thickness of guard rail = 100
- d. 300 thick beams @2500 centres
- e. 300 x 300 columns
- f. Step iron to steel tank @300centres
- g. Size of tank 4000 x 6000 x 2400 high

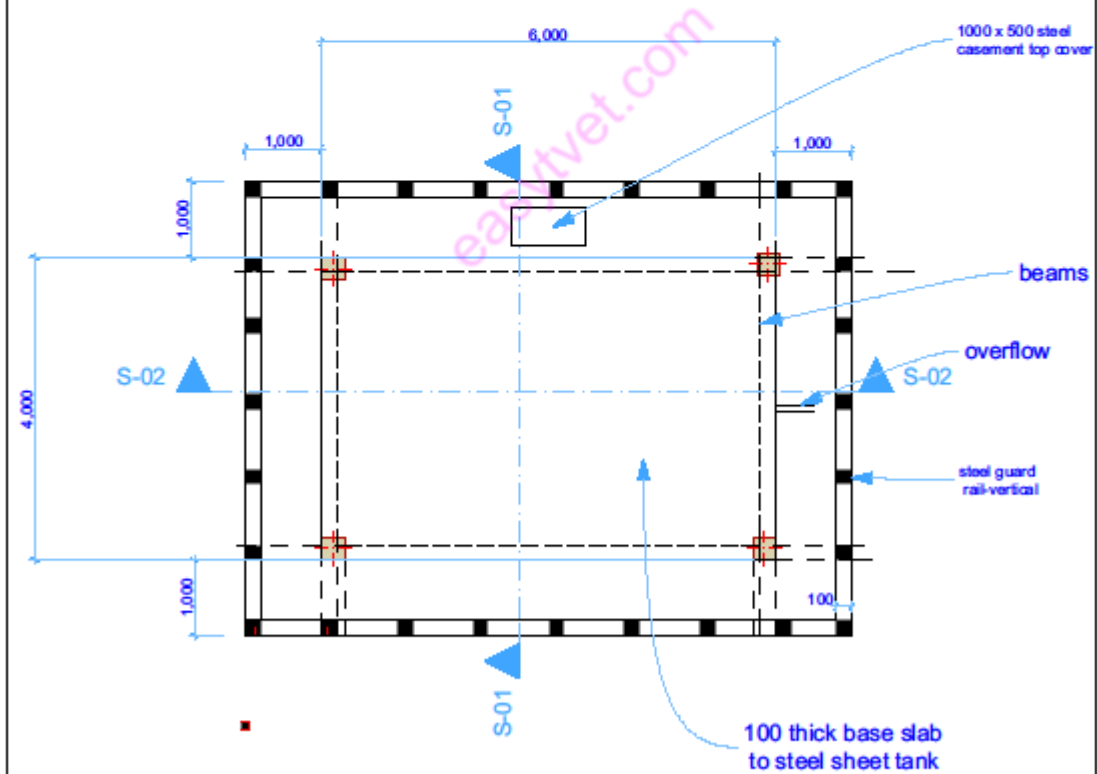
Reinforcements

- h. 4D20 for columns
- i. D8 links in columns
- j. 2D20 FOR beams
- k. 5D25 for footing

(20 marks)



PLAN FIGURE 2



PLAN FIGURE 3

14. Figure 4 shows a plan of a typical culvert crossing a road. The culvert is fed by a drop inlet channel as shown on the plan.

Draw section A- A given the following data;

- a. 10% flow in inlet channel
- b. 300 x 300mm head wall
- c. 1500mm wide stone pitching
- d. Culvert wing slope 1: 1.5
- e. 300mm bedding to culvert
- f. 500mm blinding to bedding
- g. 200mm base to runway
- h. 600 mm thick courses to surface of runway from base
- i. 100mm thick culvert markers

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