**4. Incorrect numbering of questions:**

- If a candidate numbered an answer incorrectly, but the answer is in the correct position according to the sequence of the questions in the question paper, circle the incorrect numbering and mark the response.

- If questions were answered randomly not following the same sequence as in the question paper and the learner numbered incorrectly, the response should NOT be marked.

**5. Duplication of responses and questions answered in the incorrect place:**

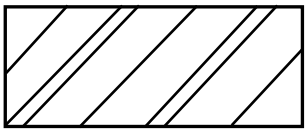
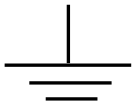
- If a question is answered twice, mark the first response.

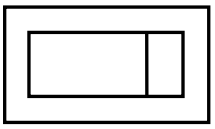
- If a question should be answered on an answer sheet and the candidate answered it on both the answer sheet and in the answer book, mark the response on the answer sheet and cancel the response in the answer book.

- If the question was answered in the answer book instead of on the answer sheet, mark the response in the answer book according to the assessment criteria on the marking guideline.

## QUESTION 2: GRAPHICS AS MEANS OF COMMUNICATION (GENERIC)

| NO. | QUESTIONS | ANSWERS | MARKS |
|---|---|---|---|
| 1 | Name the FIGURE that represents the ground floor. Give ONE reason for your answer. | Ground floor: B/FIGURE B ✓<br>FIGURE B shows: No roofline/ Roofline in FIGURE A/ Garage/Arrows on the staircase/Ramp/Door at lounge/Entrance door/Garage door/ Balcony in FIGURE A ✓ | 2 |
| 2 | Deduce the scale that was used to draw the floor plan of the house from the given building plan. | 1:100 ✓ | 1 |
| 3 | Identify number **1**. | Landing ✓ | 1 |
| 4 | Identify number **4**. | Balcony/Cantilever ✓ | 1 |
| 5 | Identify number **5**. | Shower ✓ | 1 |
| 6 | Identify number **6**. | Wash hand basin/Wash basin/Basin/WHB ✓ | 1 |
| 7 | Give the abbreviation for the symbol at number **7**. | WC ✓ | 1 |
| 8 | Identify number **8**. | Ramp ✓ | 1 |
| 9 | Identify number **9**. | Roll-up door/Garage door ✓ | 1 |
| 10 | Identify number **10**. | Fluorescent light ✓ | 1 |
| 11 | Identify the number that indicates the wall mounted light. | No 11/11 ✓ | 1 |
| 12 | Give the abbreviations for the following:<br>• Finished floor level<br>• Natural ground level | FFL ✓<br>NGL ✓ | 2 |
| 13 | Name a suitable material that can be used for constructing number **2**. | Concrete/Wood/Aluminium/Steel/ Masonry/Bricks/Glass ✓ | 1 |

| | | | |
|---|---|---|---|
| 14 | Recommend ONE use for the area indicated by number **3**. | Coffee nook/Kitchen/Playroom/ Private lounge/Office/TV room/ Bar/Dining room/Storage space/Any use with utility value ✓ | 1 |
| 15 | Recommend ONE permanent fixture for bedroom 1 that can be used for storage. | Built-in cupboard/BIC/Cupboard/ Closet/Bookshelf/Desk/ Drawer unit ✓ | 1 |
| 16 | Who is the architect that was responsible for the drawing? | HB Nel ✓ | 1 |
| 17 | Describe what is indicated by the arrows on the staircase in FIGURE **B**. | Direction of the rise of the stairs ✓ | 1 |
| 18 | State what was done during revision 1 and revision 2 of the house plan. | Revision 1 – Drawing of sanitary fitments ✓<br>Revision 2 – Drawing of staircase ✓ | 2 |
| 19 | Deduce the reference code from the building plan. | QP 6 – 2022 ✓ | 1 |
| 20 | Who must be notified when a contractor sets out levels on a site and there are variances? | Architect/HB Nel ✓ | 1 |
| 21 | Identify ONE important fixture that is omitted in the bathroom. | Ceiling light/Light/Light switch/ Switch/Fan light/Extractor fan/ Bath/Bidet/Socket outlet/Cabinet ✓ | 1 |
| 22 | Draw the symbol for face brick. |  ✓✓ | 2 |
| 23 | Draw the electrical symbol for earth. |  ✓✓ | 2 |

<table>
<tr><td>24</td><td>Draw the symbol for a grease trap.</td><td>  ✓✓</td><td>2</td></tr>
<tr><td>25</td><td>Prove by means of a control test that the total vertical dimensions on the left and right of the plan in FIGURE B are equal.</td><td>Total vertical dimensions:
<table>
<tr><td>Control test left</td><td>Control test right</td></tr>
<tr><td>220 ✓</td><td>2 960 ✓</td></tr>
<tr><td>5 450 ✓</td><td>110 ✓</td></tr>
<tr><td>220 ✓</td><td>2 820 ✓</td></tr>
<tr><td>5 890</td><td>= 5 890 ✓</td></tr>
</table>
OR<br>Left side:<br>220 + 5 450 + 220 = 5 890 mm<br>Right side:<br>2 960 + 110 + 2 820<br>= 5 890 mm<br>Note: If the alternative method is used, one mark should be allocated if both totals are the same.</td><td>7</td></tr>
<tr><td>26</td><td>Calculate the area of the first floor. Show ALL calculations. Give your answer in m².</td><td>= 5,89 ✓ m x 8,11✓ m<br>= 47,77 ✓m²<br>OR<br>= 5 890 mm x 8 110 mm<br>= 47,77 m²<br>(47,7679 $m^2$/47,8 $m^2$/48,0 $m^2$)</td><td>3</td></tr>
<tr><td></td><td></td><td>TOTAL:</td><td>40</td></tr>
</table>

## QUESTION 3: CONSTRUCTION ASSOCIATED WITH CIVIL SERVICES, OHSA AND QUANTITIES (SPECIFIC)

3.1 Manholes must be placed at the following locations:

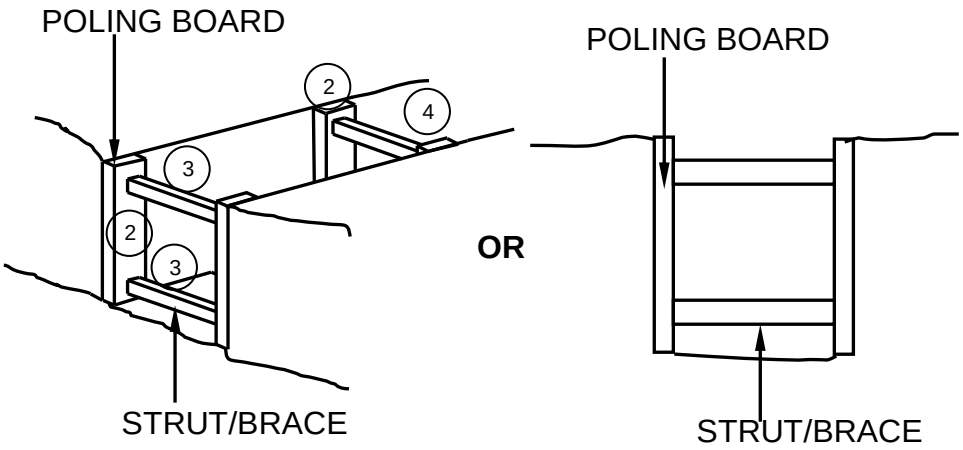
- Close to the municipal connection ✓
- No further than 2 m from the boundary ✓
- Every 20 to 25 m on a straight drain line
- Where the drain changes direction
- At changes of gradients and levels, where the ground is terraced
- At all junctions

**ANY TWO OF THE ABOVE** (2)

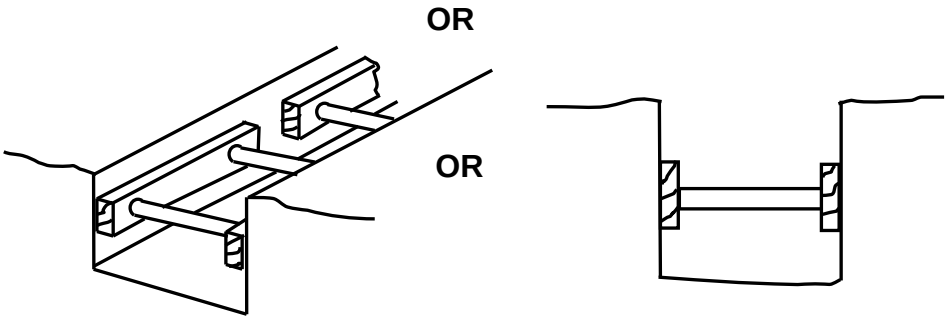
3.2
- To ensure that raw sewage spills will slide back into the channel pipe ✓
- So that vermin can't settle there ✓ (2)

3.3 Jetting/Flowable fill✓ (1)

3.4




**CORRECTNESS OF SUPPORT TO FIRM GROUND**: (1)




| NO | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Correctness of support to firm ground: | 1 |
| 2 | Poling boards | 2 |
| 3 | Struts/Braces | 2 |
| 4 | Trench | 1 |
| | **TOTAL:** | **6** |

(6)

3.5 Transparent pipe level/Dumpy level/Laser level ✓ (1)

3.6 A qualified person has:
- The knowledge ✓
- Training ✓
- Experience
- The qualifications

**ANY TWO OF THE ABOVE** (2)

3.7 Safety regulations for open manholes:
- The area must be cordoned off ✓
- Warning signs must be clearly visible ✓
- Only competent persons are allowed to work in a manhole
- The competent person must be accompanied by at least ONE other person

**ANY TWO OF THE ABOVE** (2)

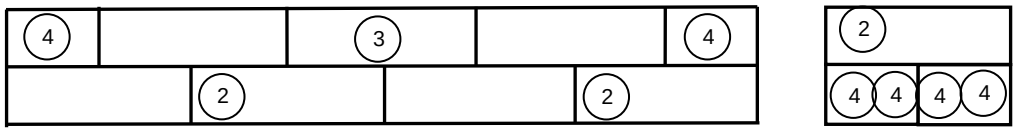
3.8 3.8.1 Rope grab ✓ (1)

3.8.2 Breathing apparatus ✓ (1)

3.9 3.9.1 Volume of a cubic water storage tank
= Area of base x height
= $s^3$
= 2,9 m ✓ x 2,9 m ✓ x 2,9 m ✓
= 24,39 $m^3$ ✓ (4)

3.9.2 Volume of water in tank = 24,39 x 1 000 ✓ litres/cubic metre
= 24 390 ℓ ✓/24 389 ℓ (2)

3.10




**CORRECTNESS OF CONSECUTIVE BRICK COURSES:** (1)

| NO | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Correctness of consecutive brick courses: | 1 |
| | delete row | |
| 2 | First course: Stretcher bricks | 2 |
| | : delete row | |
| 3 | Second course: Stretcher bricks | 1 |
| 4 | Header bricks | 2 |
| | **TOTAL:** | **6** |

(6)
**[30]**

4.6 4.6.1

✓ ✓ (2)

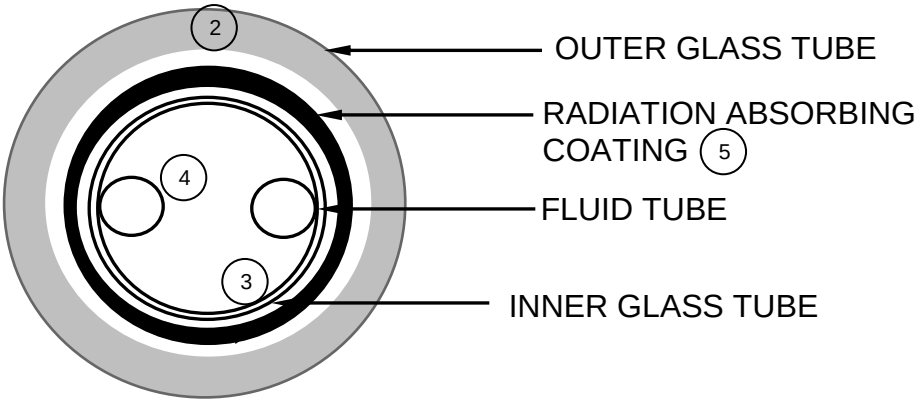
4.6.2

✓ ✓ (2)

4.7 4.7.1

- Solar panels must face North. ✓
- Panels facing North will be exposed to direct sunlight for the longest part of the day in the Southern hemisphere.✓ (2)

4.7.2




**CORRECTNESS OF EVACUATED TUBE:** 1

| NO | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Correctness of evacuated tube: | 1 |
| 2 | Outer glass tube | 1 |
| 3 | Inner glass tube | 1 |
| 4 | Fluid tube | 1 |
| 5 | Label: Radiation absorbing coating | 1 |
| | **TOTAL:** | **5** |

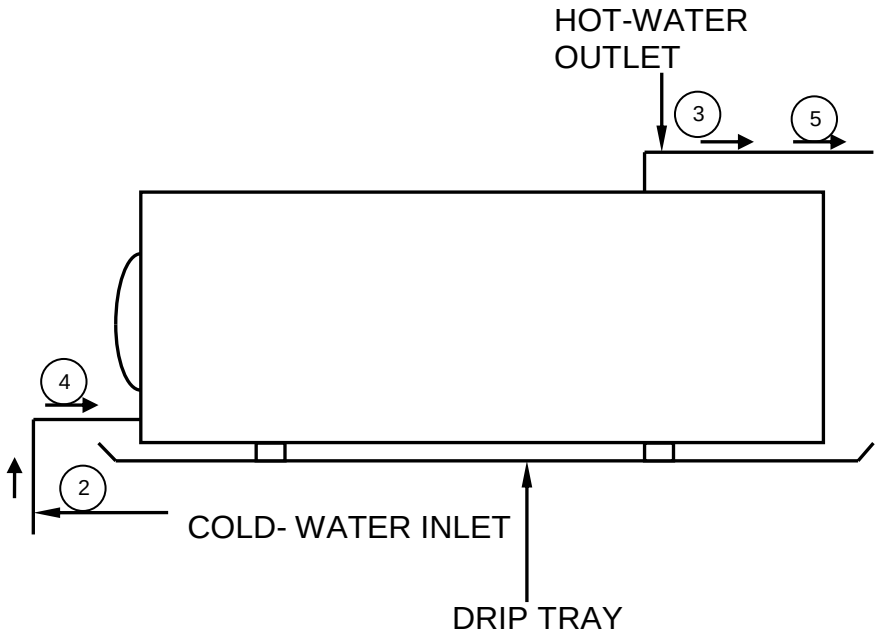
(5)

4.8 4.8.1 Non-return valve ✓ (1)

4.8.2 Locking valve ✓ (1)

4.8.3 Water can only flow in one direction ✓ When the water starts flowing back ✓the lock valve closes on its seating immediately. ✓ (3)

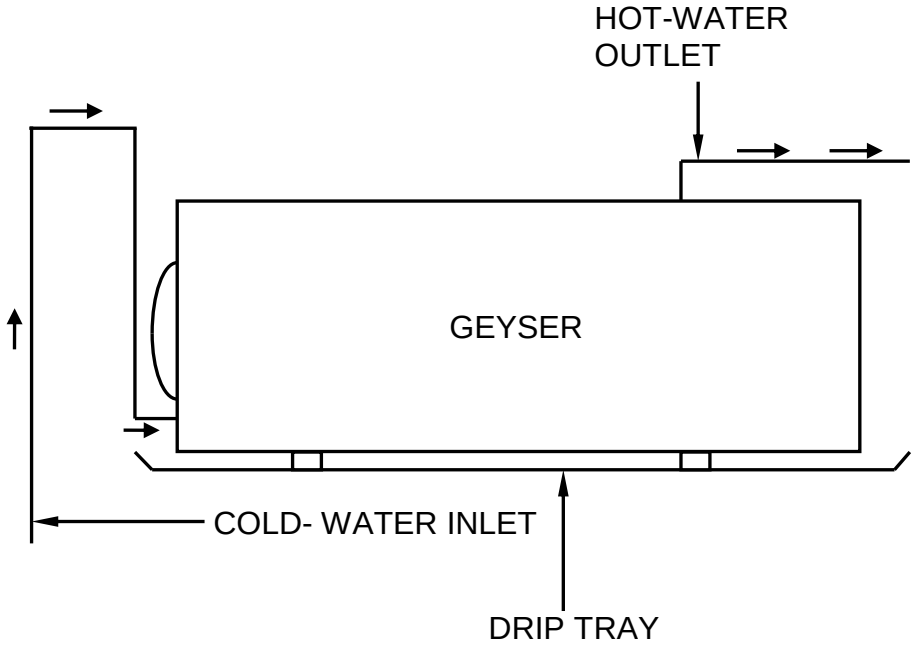
4.9




**CORRECTNESS OF COLD-AND HOT-WATER PIPES:** (1)

| NO | ASSESSMENT CRITERIA | MARK |
|---|---|---|
| 1 | Correctness of cold and hot-water pipes | 1 |
| 2 | Cold water inlet Spelling differ from above | 1 |
| 3 | Hot water outlet | 1 |
| 4 | Direction cold water | 1 |
| 5 | Direction hot water | 1 |
| | **TOTAL:** | **5** |

**OR**




**OR**