higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

MARKING GUIDELINE

NATIONAL CERTIFICATE (VOCATIONAL)

DRAWING OFFICE PROCEDURES AND TECHNIQUES

(First paper)

NQF LEVEL 3

16 November 2022

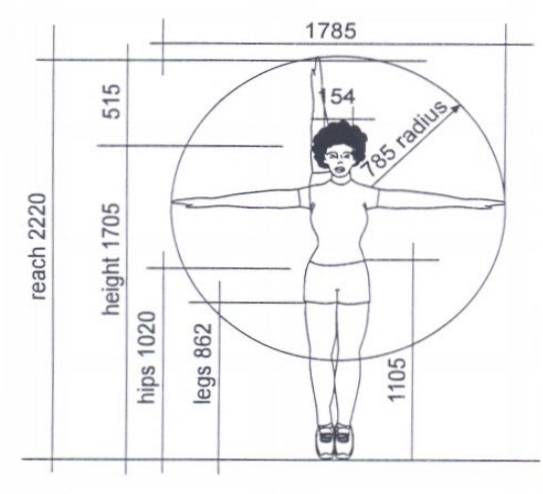
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QUESTION 1: PLANNING AND DESIGN SPECIFICATIONS

1.1 Ergonomics. (2)

1.2



- Arms extended 1785
- Reach 2220
- Height 1705
- Hips 1020
- Legs 862
- Arm length 785 (Any 5 × 1) (5)

1.3 1.3.1 True
1.3.2 True
(2 × 2) (4)

1.4
- Industrial equipment.
- Workplaces.
- Furniture.
- Protective clothes and equipment. (4)

1.5 1.5.1 Enclosing boundary of especially a circle or other shape enclosed by a curve; measurement of the distance around a circular shape.

1.5.2 Curved form; deviation of a curve from a straight line; measurement, which is neither closed nor circular, following a body contour.

1.5.3 Measurement of space and objects relating to length, height, depth, breadth and width.

1.5.4 Use of drawing and sketching to design objects and buildings, and the use of dimensions to describe them.

1.5.5 Projection of a shape in which the three axes appear at equal angles and the angles between any two of them are 120 degrees.
(5 × 2) (10)
[25]

QUESTION 2: DRAWING OFFICE ORGANISATION

2.1 2.1.1 True
2.1.2 True

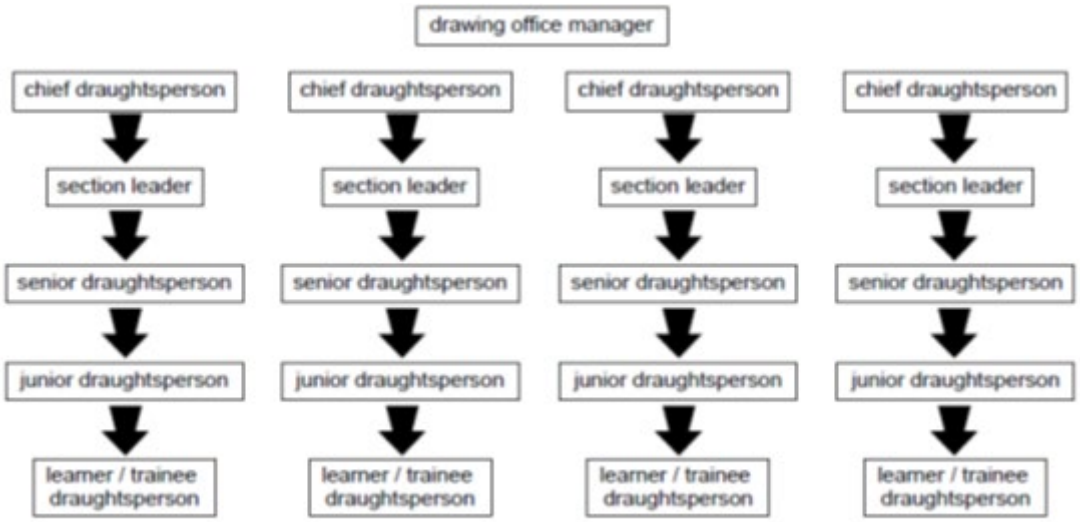
(2 × 1) (2)

2.2
- Drawing office manager.
- Production department.
- Research and development.
- Chief draughtsperson.
- Design engineer.
- Structural-steel section.
- Senior design draughtsperson.
- Section leader.
- Design draughtsperson.
- Detail draughtsperson.
- Senior draughtsperson checker.
- Draughtsperson.
- CAD operator (tracer).
- Trainee draughtsperson.
- Print and data department. (Any 2 × 1) (2)

2.3 Encourage staff to talk to each other in informal settings at work. (1)

2.4
- Fewer errors.
- Less misunderstanding.
- Greater productivity.
- Better cooperation.
- Improved morale. (5)

2.5



(20 × ½) (10)
[20]

QUESTION 3: HEALTH AND SAFETY FOR A DRAUGHTSPERSON

3.1 National Occupational Safety Association. (4)

3.2 3.2.1 Warning signs.
3.2.2 Fire equipment warning signs.
3.2.3 Informative signs.
3.2.4 Prohibitive signs.
(4 × 1) (4)

3.3
- Make sure that all the tools and equipment that were used are taken back to the store and put in their correct place.
- If oil or cutting fluid was spilt on the floor, use degreasing soap or cover the spillage with sawdust and sweep it away with a broom.
- Clean the workbench with a brush. Do not use your hands.
- Make sure that all the shavings have been cleaned from the floor and thrown away in bins. The bins must be emptied so that bins in the workshop are always clean. (Any 2 × 1) (2)

3.4
- Employees must take all reasonable care to avoid injury to themselves and other people.✓ 'Reasonable care' means wearing the safety clothing or equipment that has been provided for safety in the workplace.✓
- Floors and work areas must be kept clean and tidy.✓ Always follow safe working procedures.✓
- Employees must cooperate with the employer to promote a safe and healthy working environment.✓ To meet these conditions, notices such as 'No Smoking' or 'No Entry', should be obeyed.✓
- Report situations or procedures that could cause an accident or defects and faults in equipment immediately.✓ The safety policies of the employer must always be obeyed.✓
- Employees must not interfere with or misuse any item that has been provided in the interest of health, safety or welfare.✓ These include items such as machine guards, fire extinguishers, first-aid equipment or warning signs.✓ (5 × 2) (10)

3.5
- Approved coveralls.
- Safety footwear.
- Eye protection.
- Safety helmets.
- Respirators.
- Gloves and gauntlets.
- Ear protection.
- Hats and caps. (Any 2 × 1) (2)

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3.6



3.6.1✓✓



3.6.2✓✓



3.6.3✓✓

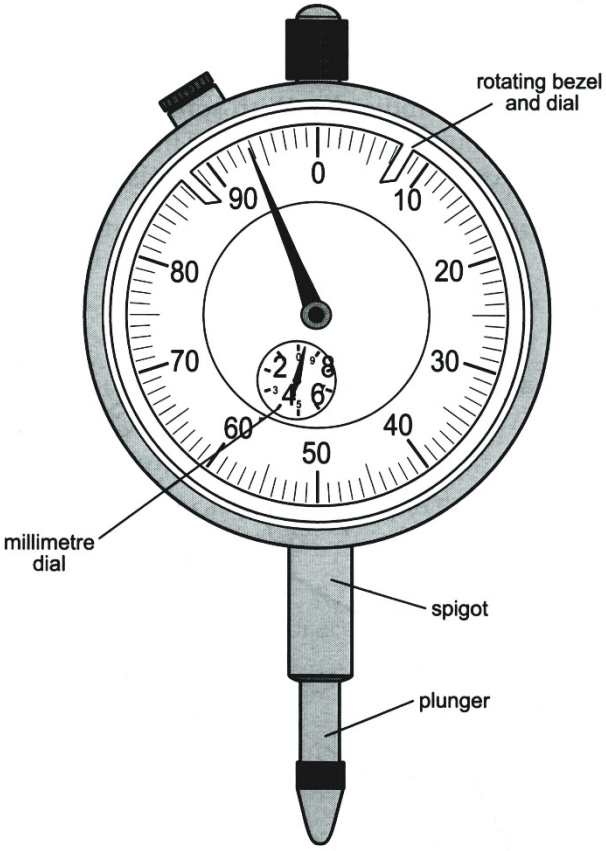


3.6.4✓✓

(4 × 2) (8)
[30]

QUESTION 4: MEASURING INSTRUMENTS AND EQUIPMENT

4.1



(Each label 4 × 1)
Drawing of numbered dial (1), Rotating bezel (1)
Millimeter dial (1), spigot (1), plunger (1) and 2 pointers (2) (11)

4.2
- A dial test indicator, which is also called a dial gauge or a clock gauge, magnifies the linear motion of the plunger.✓✓
- This highly accurate and versatile measuring instrument operates by means of a plunger attached to a rack and pinion.✓
- The upwards or downwards movement of the plunger is magnified on the dial, which is accurate to within 0.01 mm.✓ (4)

4.3
- A pointer on the graduated dial indicates the extent of movement.✓
- The outer rim is rotated to set the pointer to zero and then clamped into position.✓
- A very useful gauge can be made out of a dial test indicator and a small surface plate.✓
- A suitable pillar is mounted on the surface plate and the arm and dial are fitted.✓ Items can then be checked simply and rapidly.✓ (5)

4.4
- Accurately setting workpieces in a machine.
- Accurately setting workpieces before they are made.
- Testing a workpiece for parallel.
- Testing for roundness.
- Testing for concentricity. (5)

[25]

TOTAL: 100

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